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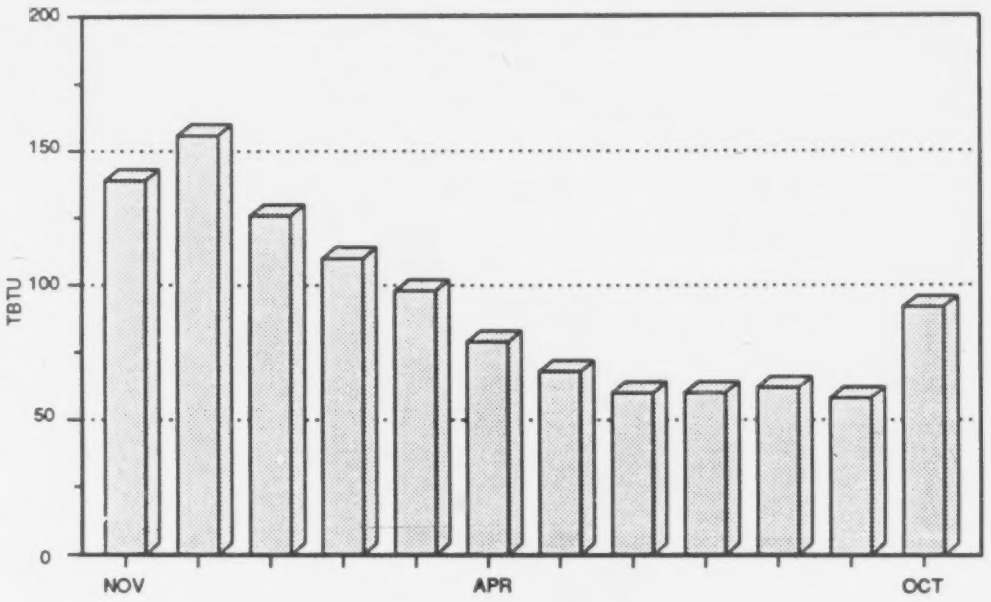
Ohio Short Term Forecast

of

Utility Fuels

1990 - 1991



Division of Forecasting
Utilities Department
Public Utilities Commission of Ohio

PUCO

State of Ohio
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Ohio Short Term Forecast of Utility Fuels 1990 - 1991

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EXECUTIVE SUMMARY

Based on one year monthly forecasts submitted by each major electric and natural gas utility company serving Ohio, and based on independent projections of the Division of Forecasting of the Public Utilities Commission of Ohio, the projected supply of fuels for generating electricity and the projected supply of natural gas for sale to jurisdictional customers are deemed adequate to meet projected end-use demand through October 1991. The forecast takes into account the possibility of a 10 percent colder than normal winter.

Supplies of coal, used to generate about 90 percent of the electricity in Ohio, are not expected to fall below a safe margin for any generating utility company through October 1991.

Supplies of the eight major natural gas distribution companies serving the state are expected to be adequate through October 1991.

As in past years, roughly 49 percent of the coal supplied to Ohio electric utilities is from out of state sources. Approximately 92 percent of Ohio's natural gas supply will continue to come from out of state sources.

OHIO SHORT TERM FORECAST OF UTILITY FUELS 1990-1991

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INTRODUCTION

Ohio Short Term Forecast of Utility Fuels 1990-1991 is a summary, analysis and assessment of the patterns and trends in the monthly demands for the supplies of natural gas and electricity in Ohio for the twelve month period beginning November 1, 1990. The utilities' forecasts and historical data are the primary input for this report. Several other sources of information have also been used, including historical energy data and the independent forecasting capabilities developed by the Division of Forecasting, federal energy reports and publications from the Energy Information Administration and the Electric Power Research Institute. A comprehensive data base has been developed to support the Division of Forecasting's ability to provide timely analyses and forecasts. This report is the technical and forecast summary from these sources.

1.1 Objectives

The major objectives guiding the preparation of this report are:

1. To provide historical data on energy usage, projections of energy availability and projections of consumption for the coming year.
2. To provide an analysis and an interpretation of short-term changes in energy supply and demand.
3. To provide an assessment of the adequacy of natural gas and electric energy supply for the upcoming twelve months.
4. To provide a strategy to prevent or mitigate any interruption or curtailment of service, if a potential deficiency is identified.

1.2 Requirements and Scope of This Report

Ohio Revised Code, section 4905.14(B), requires the natural gas and electric utilities in Ohio to file short-term forecast reports with the Public Utilities Commission of Ohio on the first day of November of each year. These

reports include the following information:

1. The total demand, stated in terms of kilowatt hours or cubic feet, that the company projects will be expected of the company for the following twelve months.
2. With respect to electric light companies, the supply of fuel for the generation of electricity that they will possess as of the first day of November.
3. With respect to natural gas companies, the pertinent details of supply contracts with pipeline companies and producers for the following twelve months that they have executed and the quantity of the gas that they will possess in storage and will be available for delivery as of the first day of November.
4. Where it appears from a comparison of the information reported that the total demand projected by the company for the twelve months following the date of the report will exceed the ability of the company to furnish it, the means which the company intends to employ in order to prevent any interruption or curtailment of service.

The Division of Forecasting prepares a summary, analysis and assessment of this information as an extention of its public information function.

The municipal utilities, industrial facilities and the rural electric cooperatives are not required to file this semi-annual report. Accordingly, this report incorporates data from the major electric and gas utilities serving the State. The Division of Forecasting estimates that in 1990 the major utilities included in this report provided approximately 95 percent of the electricity consumed in the State and 98 percent of the natural gas, excluding transportation gas.

1.3 Methodology

The independent natural gas demand forecast prepared by the Division of Forecasting for the eight major electric utilities and four gas utilities serving Ohio

are based upon time series analyses of sector requirements for each individual month of the year, between January 1970 and August 1990, adjusted for long-term annual trends, severe climatic conditions and the business cycle.

Time variant linear spline models, with adjustments, yield projections that possess better statistical properties, and are at least as accurate as alternative short-term forecasting techniques. They also offer the added flexibility of being able to produce updated forecasts which reflect and incorporate specific assumptions pertaining to the prevailing climatic and economic conditions every time the most recent actual monthly requirements are reported to the PUCO, Division of Forecasting. The utilization of an adjusted time series methodology is designed to provide a double check, thus reducing forecasting error for a more accurate and decisive diagnosis of energy requirements of the State.

1.4 Division of Forecasting Projections

As part of its analysis, the Division of Forecasting makes its own independent forecasts to serve as validation checks. The Division has the capability to forecast monthly demand by utility and for the State as a whole within a reasonable level of error (less than five percent in most cases). Such forecasts are based on an analysis of historical month-by-month actual consumption for both electricity and natural gas and other appropriate variables such as population, income, the business cycle, and temperature data.

Since November 1982, the economy has been in one of the longest expansion phases in the nation's history. The stock market reached its all-time high. Between 1986 and 1989, crude oil was selling below $20/barrel. A significant portion of this economic expansion, however, was financed through significant increases in public and private debt, based upon overly optimistic presumptions that economic growth would continue at prevailing rates for an indefinite period of time into the future. As debt increased, so did the cost of servicing the debt. At the federal level, the cost of servicing the national debt is now the third largest item in the budget after defense and welfare. The drag of this debt burden is contributing to the slowdown in current economic

growth.

Beginning in 1989, several significant events further weakened the economic conditions of our nation. The savings and loan crisis, the slumping housing market, spiraling oil prices due to the Persian Gulf crisis, and expectations about the consequences of a possible war in the Middle East are additional factors contributing to the downturn in the economy in the final quarter of 1990.

In generating the electricity and natural gas projections presented in this report, the following assumptions were made:

1. Recessionary conditions will continue throughout the forecast period. These conditions are not expected to be as severe as those experiences in the 1979-1982 recession.
2. There will not be a prolonged war in the Middle East.
3. Ohio population will remain constant.
4. Oil prices will stablize between $25 - $30/barrel if the blockade of Iraq continues throughout the forecast period. Oil prices could fall below $20/barrel if the situation is resolved peacefully.
5. Inflation will remain between 5% - 7% nationwide.
6. Unemployment will remain between 6% - 7% statewide.
7. Ohio will experience a normal winter and above normal summer temperatures.
8. Energy consumption will generally follow established seasonal and historical pattern.
9. Long-term socioeconomic changes will have a minimal effect on short-term energy consumption.

1.5 Overview of This Report

The report is divided into two parts: electric energy and natural gas. Materials presented in these two parts are, for the most part, parallel in arrangement. They contain:

(a) a profile of reporting utilities;
(b) historical sources of supplies and suppliers;
(c) consumption history by sector, utility and the State;
(d) the utilities' forecasts and independent forecasts by the Division of Forecasting.

1.6 Energy Consumption and Temperature

Changes in the observed annual energy requirements of the three major consuming sectors (residential, commercial and industrial) may be explained by a variety of factors. Temperature is a variable which explains much of the observed variation. It is particularly significant in the residential and commercial sectors, during summer and winter periods, when electricity and natural gas are used to maintain comfortable room temperatures.

The two indicators most widely used to measure temperature-sensitive energy requirements are heating degree days and cooling degree days. Degree days are calculated as follows: The daily mean temperature is obtained by adding together the maximum and minimum temperatures reported for the day and dividing the total by two. When the daily mean temperature is 65 degrees Fahrenheit, the degree day total is zero. Each degree of mean temperature below 65 degrees Fahrenheit is counted as one heating degree day. For example, if the maximum temperature was 60 degrees Fahrenheit and the minimum temperature was 50 degrees Fahrenheit for a particular day, then the daily mean temperature would be ((60+50)/2) = 55 degrees Fahrenheit . The number of heating degree days would be (65-55) = 10. This is a convenient indicator because the amount of heat required to maintain a certain temperature level is proportional to heating degree days in winter.

The cooling degree days are defined similarly. Each degree of mean temperature above 65 degree Fahrenheit is counted as one cooling degree day. If the daily mean temperature is 65 degree Fahrenheit or lower, the cooling degree day total is zero. For example, if the maximum temperature was 80

degrees Fahrenheit and the minimum temperature was 70 degrees Fahrenheit for a particular day, then the daily mean temperature would be ((80+70)/2) = 75 degrees Fahrenheit. The number of cooling degree days would be (75-65) = 10. This is another convenient forecasting indicator because the amount of energy required to maintain a certain temperature level is proportional to cooling degree days in summer.

Since most homes and commercial buildings in Ohio are heated by natural gas, the reporting gas utilities are required to submit supply and demand forecasts under a normal winter scenario and a 10 percent colder than normal winter scenario. In addition, the relationship between natural gas consumption and heating degree days is closely monitored during the winter heating season (from November through March).

Table 1 and figure 1 present monthly comparisons of population-weighted state heating degree days for the past two heating seasons. A "normal" heating degree day series, defined as the 20 year average of the years 1970 to 1989, is also included in the comparisons.

ELECTRICITY

This section is based on the November forecasts filed by eight major Ohio electric utilities. Columbus Southern Power Company and Ohio Power Company are subsidiaries of the American Electric Power Company. Because the centrally dispatched American Electric Power Company operates as a integrated distribution system, the report reviews forecasts of demand and fuel adequacy for the entire American Electric Power Company. The Allegheny Power System is also a centralized power generation and distribution system and is reviewed in the same manner. One subsidiary, Monongahela Power has a portion of its service area located in southeast Ohio. While Cleveland Electric Illuminating Company and Toledo Edison Company are subsidiaries of Centerior Energy Corporation, each company submits a separate forecasts and will be treated as a separate company within the context of this report. The forecasts of eight utilities serving Ohio are presented as follows:

1. Allegheny Power System (APS) Monongahela Power Company
   Other out-of-state subsidiaries not subject to reporting
2. American Electric Power Company (AEP)
   Columbus Southern Power Company (CSP)
   Ohio Power Company (OP)
   Other out-of-state subsidiaries not subject to reporting
3. Cincinnati Gas and Electric Company (CG&E)
4. Cleveland Electric Illuminating Company (CEI)
5. Dayton Power and Light Company (DP&L)
6. Ohio Edison Company (and its subsidiary Pennsylvania Power Company, which is not subject to reporting) (OE)
7. Ohio Valley Electric Corporation (OVEC)
8. Toledo Edison Company (TE)

With the exception of OVEC, each of these is an investor-owned utility supplying electricity to residential, commercial and industrial customers in its service

area. The Ohio Valley Electric Corporation is a single-customer investor-owned utility supplying power for the uranium enrichment plant at Piketon, Ohio. It also sells surplus generation to other electric utilities.

2.1 Supply and Generation

Buckeye Power, Inc., which is a consumer-owned cooperative, is exempt from the reporting requirements analyzed in this report. Therefore, all historical and forecast magnitudes projected in this report exclude Buckeye Power.

2.1.1 Source/Supplier of Fuel for Electricity Generation

Fuels used in Ohio for electricity generation include coal, oil, natural gas and nuclear fuel. Nuclear fuel sources are not monitored by the Division. All other fuels are monitored through the utilities' monthly reports. Tables 2 and 3 list coal and oil deliveries to power plants located in Ohio. The main sources of supply and/or suppliers of these fuels remain the same as in the last reporting period.

Coal deliveries to Ohio electricity generation plants during the twelve months ending July 1990 increased by 5,196,800 short tons or 11.34 percent from the previous twelve month period (see table 2 and figure 2). Deliveries of oil to Ohio power plants decreased by 278,700 barrels or 30.57 percent during the twelve months ending July 1990 from the previous twelve month period (see table 3 and figure 3).

2.1.2 Electric Generation by Type of Fuel

Coal remains the main source of fuel for the generation of electricity in Ohio, a condition which is not expected to change in the future. In the twelve month period ending July 1990, 89.92 percent of the total electricity generated in Ohio was from coal, 0.12 percent from gas and oil and 9.96 percent from nuclear generation.

The total amount of electricity generated for Ohio, during the same

period of time, grew by 5.39 percent to 139,604 gigawatt-hours. The amount of electricity produced from coal increased 1.56 percent to 125,539 gigawatt-hours while nuclear generation increased to 13,905 gigawatt-hours which was 64.63 percent more than the previous twelve months. The large increase in nuclear generation, from August 1988 - July 1989 to August 1989 - July 1990, was primarily due to two reasons: Perry I operated at a higher capacity (approximately 10% higher) during the latter period, and Perry I was shut down between March 1989 to July 1989.

With acid rain legislation becoming a growing concern, the percentage of electricity generated by coal fired plants may continue to decline in the near future.

Table 4 and figure 4 show the combined monthly totals of the reporting utilities' net generation from Ohio plants. Historical power plant fuel consumption and fuel stocks are presented in table 5.

2.2 Historical Behavior of Sectoral Requirements

The discussion and the observations presented in this section (section 2.2) exclude Buckeye Power, Inc. service area requirements. The residential and commercial sectors exhibits regular seasonal patterns while the industrial sector fluctuates widely with general economic conditions (see Appendix A).

The residential sectoral consumption posted a 1.0 percent gain for the twelve month period ending in August 1990 compared to a 0.5 percent decline last year (see table 6 and figure 5-A). Brisk sales from September to January generated an annualized growth rate of 7.1 percent. Despite the initial surge in consumption, residential sales managed only to grow slightly for the year due to a warm February and cooler-than-normal summer months.

The commercial sectoral consumption posted a moderate gain of 2.1 percent for the twelve month period ending in August 1990 (see table 6 and figure 5-B). The consumption patterns present in the residential sector were observed in the commercial sector. An intial robust growth rate in commercial sales stalled as evidenced by a diminished growth rate, beginning in February

1990.

The industrial sectoral consumption posted a 4.5 percent gain for the twelve month period ending in August 1990 compared to a 1.7 percent increase for the same period ending in August 1989 (see table 6 and figure 5-C). Industrial sales recorded a vigorous 10.4% growth rate in the latter part of 1989. By 1990, waning corporate profits, inflationary pressures, general softening in economic conditions, and the fear of a pending recession resulted in a lackluster performance of industrial sales between January and August.

Total electricity consumption in the State between September 1989 and August 1990 was 2.9 percent higher than the preceding twelve months (see table 6 and figures 5-D & 5-E). During the latter half of 1989, the growth rate for total electricity consumption hovered around 8%. This high rate of growth was due, in part, to a return to full scale operations by OVEC, which had reduced its output in 1988 to comply with USDOE investigation into nuclear safety issues. As recessionary pressures weakened sales in the industrial sector (which accounted for approximately 49% of the electricity sales), and sales in the residential and commercial sectors declined due to mild weather, total electricity sales continued its recent slowing trend.

2.3 Twelve Month Electricity Demand Forecasts

Each electric utility is required by the Ohio Revised Code, section 4905.14(B), to submit forecasts at the beginning of July and November to the Public Utilities Commission of Ohio, Division of Forecasting. The forecasts are required to project the total demand of each company's service area for the following twelve months. These forecasts are displayed in Appendix A, tables A-l through A-8, along with independent forecasts prepared by the Division of Forecasting. The Division also prepares independent twelve month forecasts of electricity demand for the State of Ohio, by sector. These forecasts are displayed in Appendix A, tables A-9 through A-l2.

2.4 Assessment of Utility Fuel Adequacy

Tables 7-A and 7-B present the utilities' projections of deliveries, consumption, and end-of-month stocks of coal and oil for the generation of electricity. Table 7-C presents the Division's independent assessment of the adequacy of supply of generating fuels. The Division's projections and assessments are presented for the CAPCO group of utilities, which include Cleveland Electric Illuminating Company, Ohio Edison Company, and Toledo Edison Company; for the American Electric Power System, the Allegheny Power System, and for Buckeye Power Inc., Dayton Power and Light Company, Cincinnati Gas and Electric Company, and the Ohio Valley Electric Corporation.

2.4.1 Coal

The Division's projections, as well as those of the electric utilities, indicate an adequate supply of coal throughout the forecast period for each utility serving the State. The American Electric Power System possessed the highest average monthly inventory of coal with about 3.34 months of supplies while Dayton Power & Light Company retained the lowest average monthly inventory with 1.51 months of coal supplies in stock. The average monthly inventory for the eight companies under consideration was 69 days.

2.4.2 Oil

Each electric utility forecasts an adequate supply of oil for the generation of electricity throughout the forecast period. Net generation from oil is currently 0.11 percent of total net generation. Oil is being used as a start-up fuel and in peaking units. Due to the reduction of the number of peaking units using oil, the Division does not anticipate that the utilities will generate

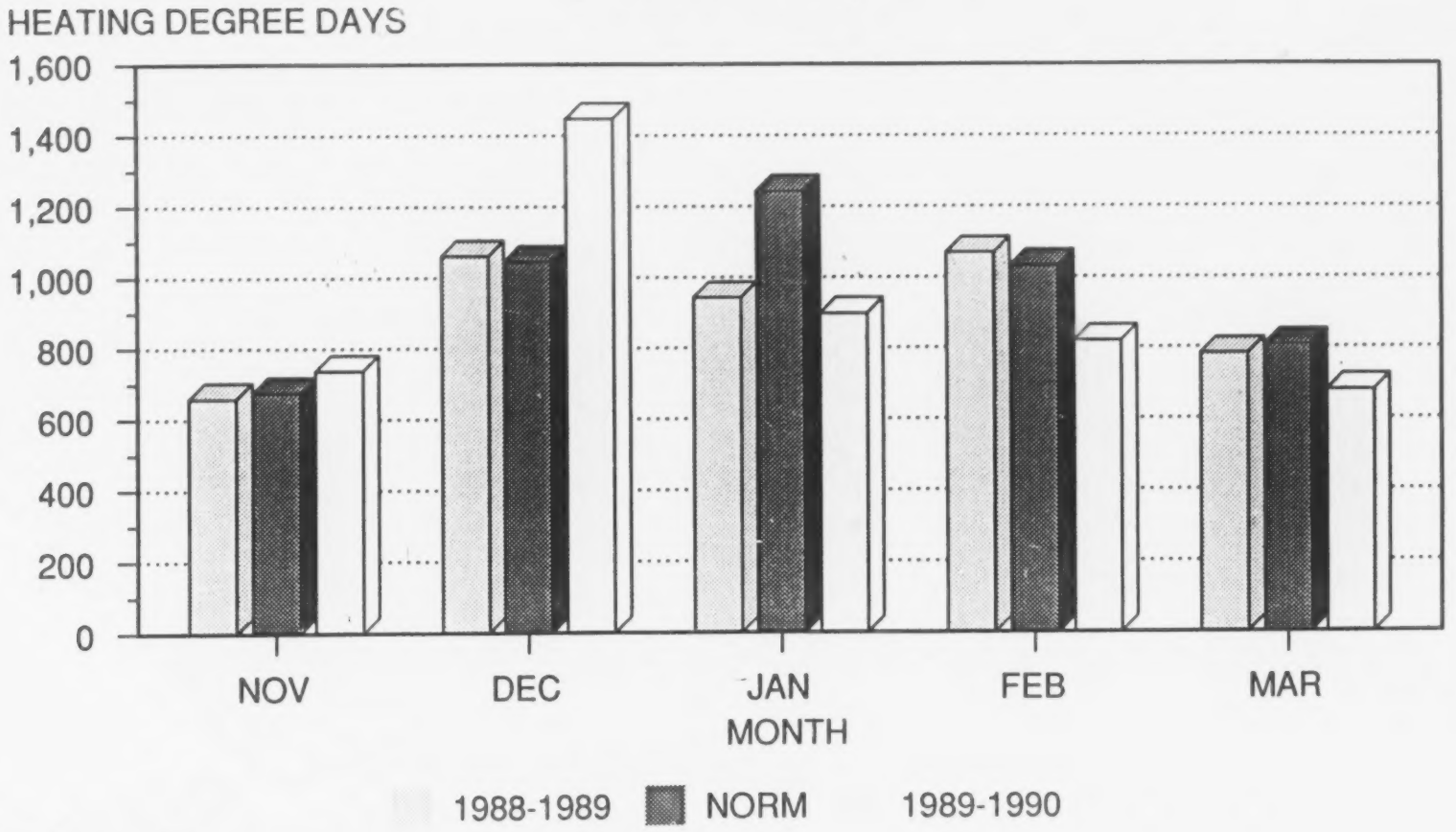
much electricity from peaking units and consequently our projections indicate that there will be an adequate supply of oil, under normal generating conditions.

TABLE 1. POPULATION-WEIGHTED HEATING DEGREE-DAY SUMMARY FOR OHIO[1] NOVEMBER 1988 to MARCH 1990

MONTH	1989-1990	NORM	1988-1989
NOVEMBER	737	676	659
DEVIATION FROM NORM	9.0%		-2.5%
DEVIATION FROM PREVIOUS YEAR	11.8%		14.8%
DECEMBER	1447	1045	1060
DEVIATION FROM NORM	38.47%		1.4%
DEVIATION FROM PREVIOUS YEAR	36.51%		13.7%
JANUARY	897	1243	942
DEVIATION FROM NORM	-27.8%		-24.2%
DEVIATION FROM PREVIOUS YEAR	-4.8%		-24.0%
FEBRUARY	819	1031	1069
DEVIATION FROM NORM	-20.6%		3.7%
DEVIATION FROM PREVIOUS YEAR	-23.4%		1.2%
MARCH	680	807	784
DEVIATION FROM NORM	-15.7%		-2.9%
DEVIATION FROM PREVIOUS YEAR	-13.3		-4.6%

1 Source: National Oceanic and Atmospheric Administration, Historical Climatology Series 5-1 and the Division of Forecasting.

FIGURE 1. POPULATION- WEIGHTED DEGREE DAYS FOR WINTER HEATING SEASONS [1] (1989 & 1990)



1 Source: Table 1.

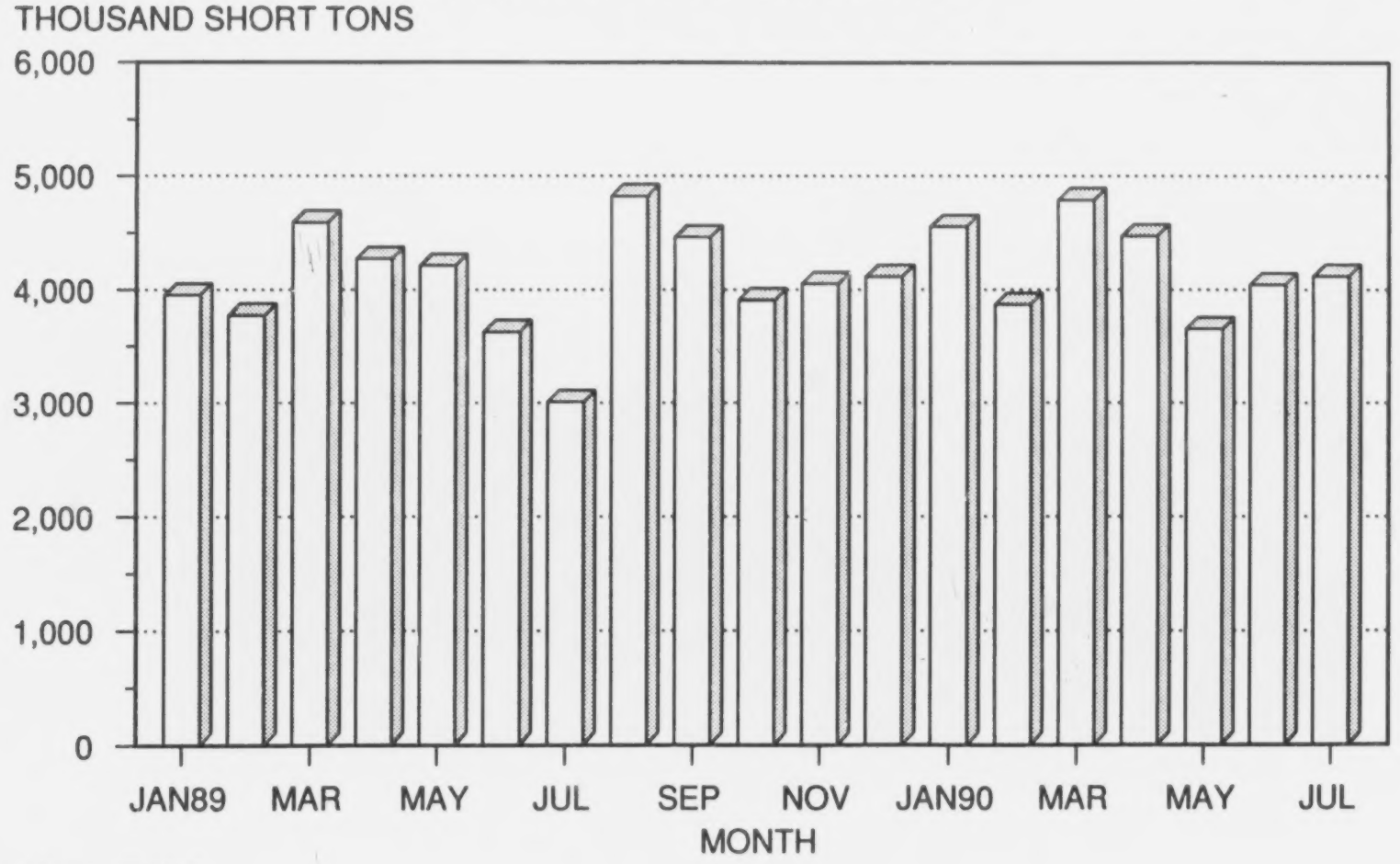
Table 2. Source of Coal Supply to Electric Utilities
Ohio Portion[1]
(1000 Short Tons)

Month	DISTRICT NO. 1	2	3	4	6	7&8	9	Other	Total
1988									
January	10.0	256.4	0.0	2,345.2	257.1	1,356.1	0.0	7.1	4,231.9
February	0.0	261.2	0.0	2,148.7	285.0	1,246.4	33.6	0.0	3,974.9
March	8.0	355.9	0.0	1,959.4	266.4	1,325.8	31.3	30.4	3,977.2
April	40.0	234.4	12.0	1,841.6	299.4	853.7	13.7	13.5	3,308.3
May	43.0	260.6	20.2	1,736.7	262.2	1,178.7	20.9	33.8	3,556.1
June	0.0	82.0	57.0	1,886.9	246.4	1,338.8	28.5	13.2	3,652.8
July	10.0	208.9	38.7	1,743.2	95.1	1,439.9	38.8	5.8	3,580.4
August	57.0	242.8	63.7	1,703.8	284.7	1,597.9	69.5	11.0	4,030.4
September	0.0	196.5	27.1	1,703.1	291.8	1,112.7	26.7	6.3	3,364.2
October	28.0	316.4	12.0	1,624.9	322.3	1,009.2	14.1	0.0	3,326.9
November	29.0	240.5	36.0	1,688.2	246.3	1,091.6	22.6	6.4	3,360.6
December	18.0	246.6	0.0	2,051.0	283.8	1,474.2	37.1	4.6	4,115.3
Total	243.0	2,902.2	266.7	22,432.7	3,140.5	15,025.0	336.8	132.1	44,479.0
% of Total	0.5%	6.5%	.6%	50.4%	7.1%	33.8%	0.8%	0.3%	100.0%
1989									
January	37.0	238.8	100.2	2,106.2	260.8	1,180.1	27.3	0.0	3,950.4
February	19.4	216.6	77.3	2,072.2	288.9	1,072.0	24.5	3.0	3,773.9
March	0.0	279.4	83.7	2,327.5	288.6	1,508.7	96.1	6.3	4,590.3
April	27.7	215.0	71.9	2,101.2	365.7	1,475.2	4.6	10.8	4,272.1
May	38.6	106.9	103.7	2,155.2	393.4	1,401.5	12.3	0.0	4,211.6
June	42.5	208.8	88.0	1,762.3	271.2	1,216.4	26.2	11.2	3,626.6
July	37.6	173.2	30.2	1,473.8	100.5	1,121.9	71.0	1.6	3,009.8
August	62.9	242.5	68.3	2,377.2	331.2	1,620.6	24.4	93.5	4,820.6
September	49.7	200.8	71.7	2,174.3	281.7	1,585.9	85.4	10.9	4,460.4
October	47.8	189.4	86.7	1,817.1	376.9	1,280.3	104.7	3.1	3,906.0
November	20.0	190.0	54.0	2,076.9	307.1	1,243.4	141.1	18.4	4,050.9
December	0.0	207.8	71.4	1,931.1	342.2	1,413.7	127.7	15.7	4,109.6
Total	383.2	2,469.2	907.1	24,375.0	3,608.2	16,119.7	745.3	174.5	48,782.2
% of Total	0.8%	5.1%	1.9%	50.0%	7.4%	33.0%	1.5%	0.4%	100.0%
1990									
January	38.5	186.6	36.9	2,275.4	345.5	1,596.9	64.2	4.6	4,548.6
February	23.7	271.6	65.1	2,001.5	346.8	1,113.5	36.6	6.2	3,865.0
March	47.8	276.7	60.7	2,500.7	383.6	1,450.1	20.0	50.5	4,790.1
April	20.0	225.2	77.6	2,162.4	421.0	1,536.1	26.4	3.6	4,472.3
May	20.0	200.8	73.5	1,984.8	334.1	1,023.6	14.5	0.0	3,651.3
June	10.0	275.1	87.5	1,834.9	329.8	1,482.1	19.6	0.0	4,039.0
July	9.0	257.9	93.9	1,921.6	333.5	1,497.5	1.7	0.0	4,115.1

District
1. Eastern Pennsylvania
2. Western Pennsylvania
3. Northern West Virginia
4. Ohio
6. Panhandle (in West Virginia)
7. Southern No. 1 (in West Virginia and Virginia)
8. Southern No. 2 (in West Virginia and Virginia)
9. Western Kentucky
Other- Primarily from Wyoming and Utah

1 Source: FERC Form No. 423.

FIGURE 2. MONTHLY COAL DELIVERIES TO POWER PLANTS IN OHIO[1] (JANUARY 1989 - JULY 1990)



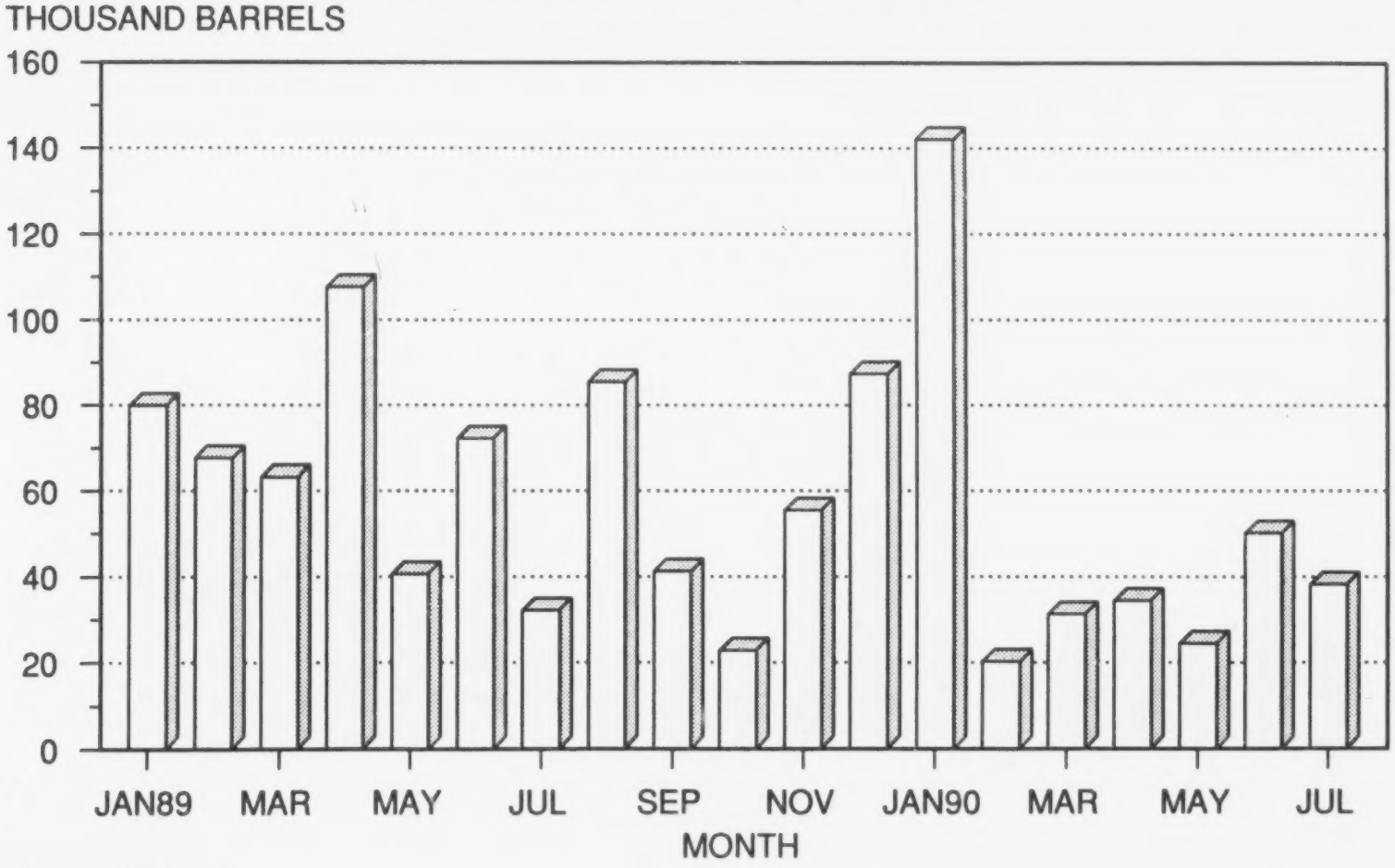
1 Source: Table 2.

Table 3. Major Oil Suppliers to Electric Utilities
Ohio Portion[1]
(Thousand Barrels)

	Allied	Marathon	Standard	Union	Other	Total
1988						
January	37.9	0.0	4.7	0.0	63.2	105.8
February	21.0	0.0	0.0	0.0	15.3	36.3
March	49.6	0.0	0.3	0.0	56.6	106.5
April	6.7	0.0	0.9	0.0	5.8	13.4
May	20.2	0.0	0.2	0.0	8.6	29.0
June	6.9	0.0	0.0	0.0	6.3	13.2
July	43.9	0.0	0.0	0.0	6.5	50.4
August	147.0	0.4	0.4	0.0	22.0	169.8
September	9.1	0.0	0.0	0.0	7.0	16.1
October	33.6	0.0	0.0	0.0	3.1	36.7
November	84.5	0.0	0.0	0.0	13.7	98.2
December	67.4	0.0	0.3	0.0	59.8	127.5
Total	527.8	0.4	6.8	0.0	267.9	802.9
% of Total	65.7%	0.0%	0.8%	0.0%	33.4%	100.0%
1989						
January	68.8	0.0	0.6	0.0	10.5	79.9
February	52.8	0.0	0.2	0.0	14.7	67.7
March	42.4	0.0	1.1	0.0	19.7	63.2
April	57.7	0.0	0.0	0.0	49.9	107.6
May	15.2	0.0	0.6	0.0	24.8	40.6
June	61.9	0.0	0.2	0.0	10.1	72.2
July	20.2	0.0	0.5	0.0	11.4	32.1
August	73.6	0.0	0.2	0.0	11.6	85.4
September	28.8	0.0	0.5	0.0	11.9	41.2
October	20.3	0.0	0.3	0.0	2.2	22.8
November	24.9	0.0	0.9	0.0	29.6	55.4
December	51.1	0.0	0.3	0.0	36.0	87.4
Total	517.7	0.0	5.4	0.0	232.4	755.5
% of Total	68.5%	0.0%	0.7%	0.0%	30.8%	100.0%
1990						
January	103.1	0.0	0.4	0.0	38.5	142.0
February	12.9	0.0	0.3	0.0	7.1	20.3
March	19.7	0.0	0.4	0.0	11.1	31.2
April	12.8	0.0	0.7	0.0	20.9	34.4
May	11.9	0.0	0.2	0.0	12.3	24.4
June	39.5	0.0	0.3	0.0	10.4	50.2
July	16.7	0.0	0.0	0.0	21.5	38.2

1 Source: FERC Form No. 423.

FIGURE 3. MONTHLY OIL DELIVERIES TO POWER PLANTS IN OHIO[1] (JANUARY 1989 - JULY 1990)



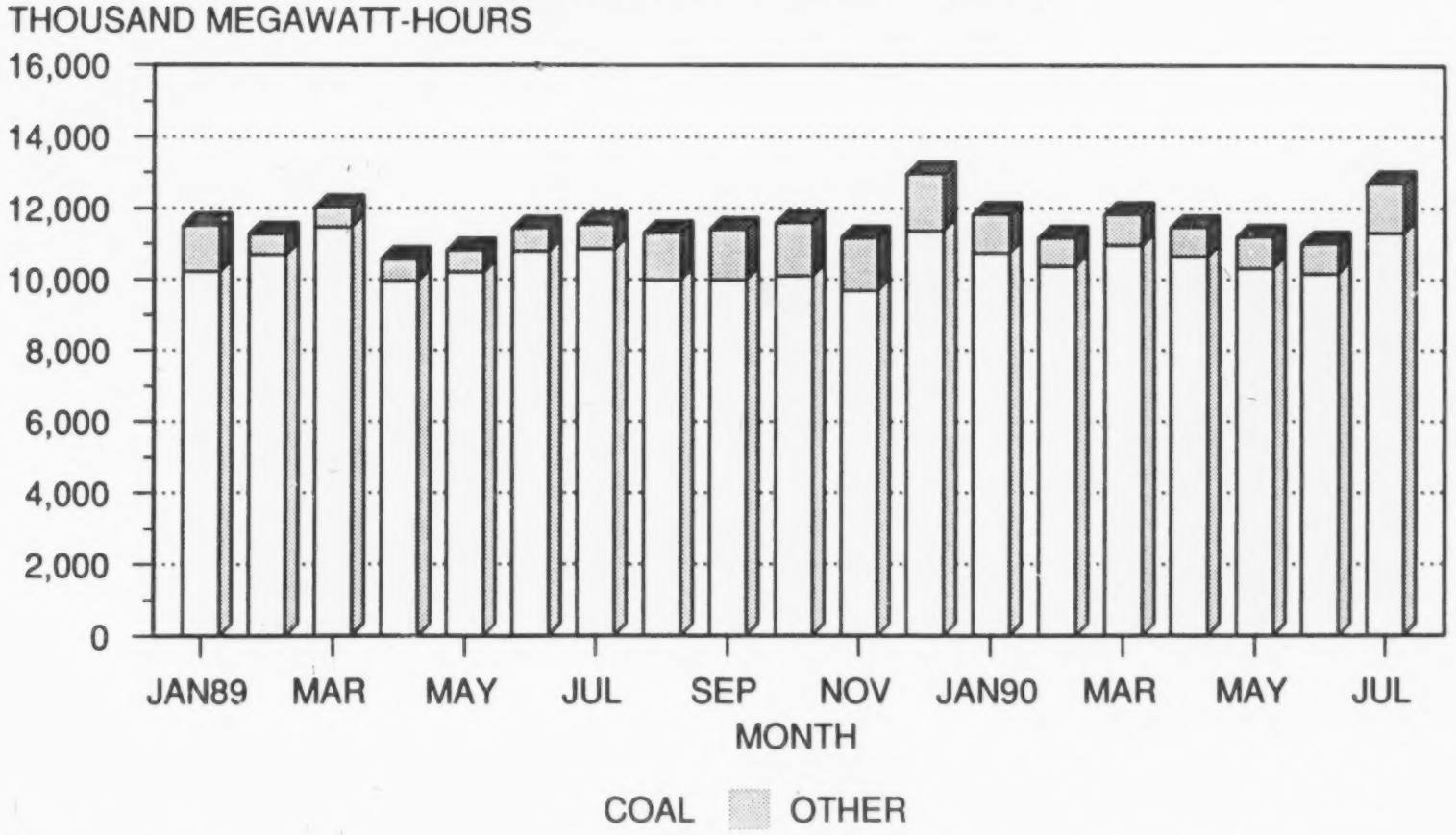
1 Source: Table 3.

Table 4. Major Ohio Utilities - Net Generation by Type of Fuel (Ohio Portion)[1] (Thousand MWH)

	Coal	Oil	Gas	Nuclear	Total
1988					
January	10,185	22	0	537	10,744
February	9,409	5	0	1,085	10,499
March	9,928	3	0	945	10,876
April	9,033	3	0	758	9,794
May	9,763	3	0	424	10,190
June	10,551	7	0	312	10,870
July	10,708	32	0	815	11,555
August	10,978	75	73	819	11,945
September	9,698	6	0	433	10,137
October	9,913	24	0	542	10,479
November	8,689	24	0	724	9,437
December	10,208	27	0	1,062	11,297
Total	119,063	232	73	8,456	127,824
% of Total	93.15%	0.18%	0.06%	6.61%	100.00%
1989					
January	10,207	19	0	1,290	11,516
February	10,686	22	0	557	11,265
March	11,458	20	0	552	12,030
April	9,947	19	0	602	10,568
May	10,195	25	0	595	10,815
June	10,781	23	0	629	11,433
July	10,856	47	2	641	11,546
August	9,976	18	1	1,311	11,306
September	9,975	7	0	1,416	11,398
October	10,087	14	1	1,486	11,588
November	9,681	9	0	1,477	11,167
December	11,360	53	3	1,547	12,963
Total	125,209	276	7	12,103	137,595
% of Total	91.00%	0.20%	0.01%	8.80%	100.00%
1990					
January	10,735	14	0	1,075	11,824
February	10,363	3	0	802	11,168
March	10,956	2	0	870	11,828
April	10,642	8	0	814	11,464
May	10,305	3	0	879	11,187
June	10,153	9	2	846	11,010
July	11,306	12	1	1,382	12,701

1 Source: Form EIA-759.

FIGURE 4. NET GENERATION BY TYPE OF FUEL[1]
MAJOR OHIO ELECTRIC UTILITIES (OHIO PORTION)
(JANUARY 1989 - JULY 1990)



1 Source: Table 4.

Table 5. Major Ohio Utilities
Fuel Consumption and Stocks[1]
(Ohio Portion)

	Coal		Oil		Gas
	(Thousand Tons)		(Thousand 42-Gal. Bbls.)		(MMCF)
	Burned	In Stock	Burned	In Stock	Burned
1988					
January	4,341.9	11,681.5	101.7	359.8	20.8
February	4,123.2	11,598.6	45.2	352.9	19.3
March	4,276.9	11,180.1	38.5	411.2	35.8
April	3,923.6	10,770.8	34.3	408.1	19.7
May	4,212.3	10,438.1	39.3	394.3	24.5
June	4,632.8	10,364.2	90.7	364.5	27.6
July	4,727.1	9,330.7	108.3	323.9	39.2
August	4,851.2	8,938.6	206.6	362.4	105.6
September	4,265.8	8,371.8	37.2	361.2	70.1
October	4,309.4	8,450.0	82.8	311.1	18.2
November	3,784.0	8,926.7	94.2	317.5	23.2
December	4,445.6	8,525.6	93.2	384.6	16.1
Total	51,893.8	118,576.7	972.0	4,351.5	420.1
Avg/Month	4,324.5	9,881.4	81.0	362.6	35.0
1989					
January	4,472.5	8,338.8	75.5	408.5	9.7
February	4,639.6	7,825.0	84.6	388.5	19.9
March	4,960.0	7,684.1	79.0	369.3	7.9
April	4,245.4	8,182.0	67.6	388.9	13.5
May	4,296.5	8,498.6	85.2	365.4	24.4
June	4,725.8	7,649.9	86.6	383.1	40.7
July	4,865.0	6,039.3	142.7	361.2	84.0
August	4,458.2	7,015.4	91.3	397.7	48.5
September	4,393.1	7,334.6	40.9	397.9	8.3
October	4,404.4	7,704.1	65.5	366.0	17.3
November	4,076.4	8,278.7	59.3	360.9	4.4
December	5,030.8	8,182.0	202.5	276.4	102.1
Total	54,567.7	92,732.5	1,080.7	4,463.8	380.7
Avg/Month	4,547.3	7,727.7	90.1	372.0	31.7
1990					
January	4,847.4	8,475.9	70.1	425.1	27.1
February	4,636.9	8,514.7	41.6	399.3	17.7
March	4,857.4	9,682.0	42.3	396.7	18.2
April	4,740.9	10,255.5	53.6	384.7	39.4
May	4,616.3	10,328.0	49.4	390.2	38.7
June	4,414.5	9,687.1	59.4	362.7	65.1
July	5,060.1	10,632.2	72.0	372.5	42.4

1 Source: Form EIA-759.

Table 6. Ohio Electricity Consumption[12]
September 1988 - August 1990
(Thousand MWH)

	September	October	November	December	January	February	March	April	May	June	July	August	Total
Residential													
1989-90	2,508	2,341	2,673	3,628	3,623	2,869	2,760	2,572	2,239	2,489	2,845	2,827	33,374
1988-89	2,343	2,241	2,651	3,167	3,389	3,097	3,039	2,515	2,294	2,451	3,054	2,872	33,113
% Change	7%	4%	1%	15%	7%	-7%	-9%	2%	-2%	2%	-7%	-2%	1%
Commercial[3]													
1989-90	3,040	2,698	2,694	2,994	2,949	2,664	2,861	2,642	2,782	2,779	3,245	3,235	34,583
1988-89	2,912	2,647	2,533	2,771	2,915	2,736	2,832	2,610	2,612	2,920	3,218	3,155	33,860
% Change	4%	2%	6%	8%	1%	-3%	1%	1%	7%	-5%	1%	3%	2%
Industrial													
1989-90	5,485	5,621	5,533	5,609	5,349	5,222	5,746	5,456	5,755	5,317	5,399	5,736	66,228
1988-89	5,020	5,148	4,895	5,091	5,377	5,336	5,637	5,431	5,411	5,338	5,419	5,271	63,374
% Change	9%	9%	13%	10%	1%	-2%	2%	0%	6%	0%	0%	9%	5%
Total													
1989-90	11,033	10,660	10,900	12,231	11,921	10,755	11,367	10,670	10,776	10,585	11,489	11,798	134,185
1988-89	10,275	10,036	10,079	11,029	11,681	11,169	11,508	10,556	10,317	10,709	11,691	11,298	130,347
% Change	7%	6%	8%	11%	2%	-4%	-1%	1%	4%	-1%	-2%	4%	3%

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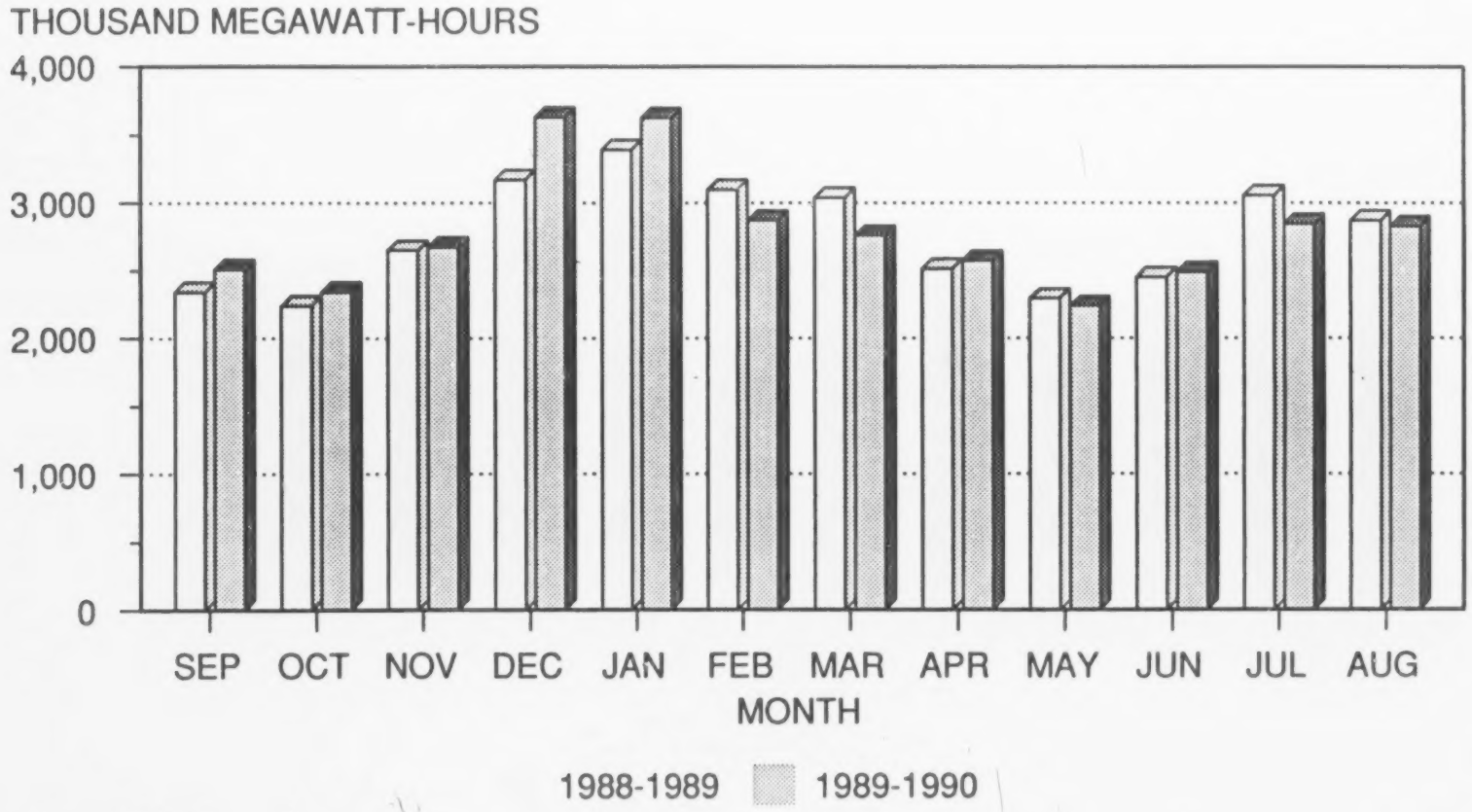
1 Source: PUCO Form SE-1.

2 Figures do not include Buckeye Power.

3 Includes commercial, street & highway lighting, municipal, and other sales.

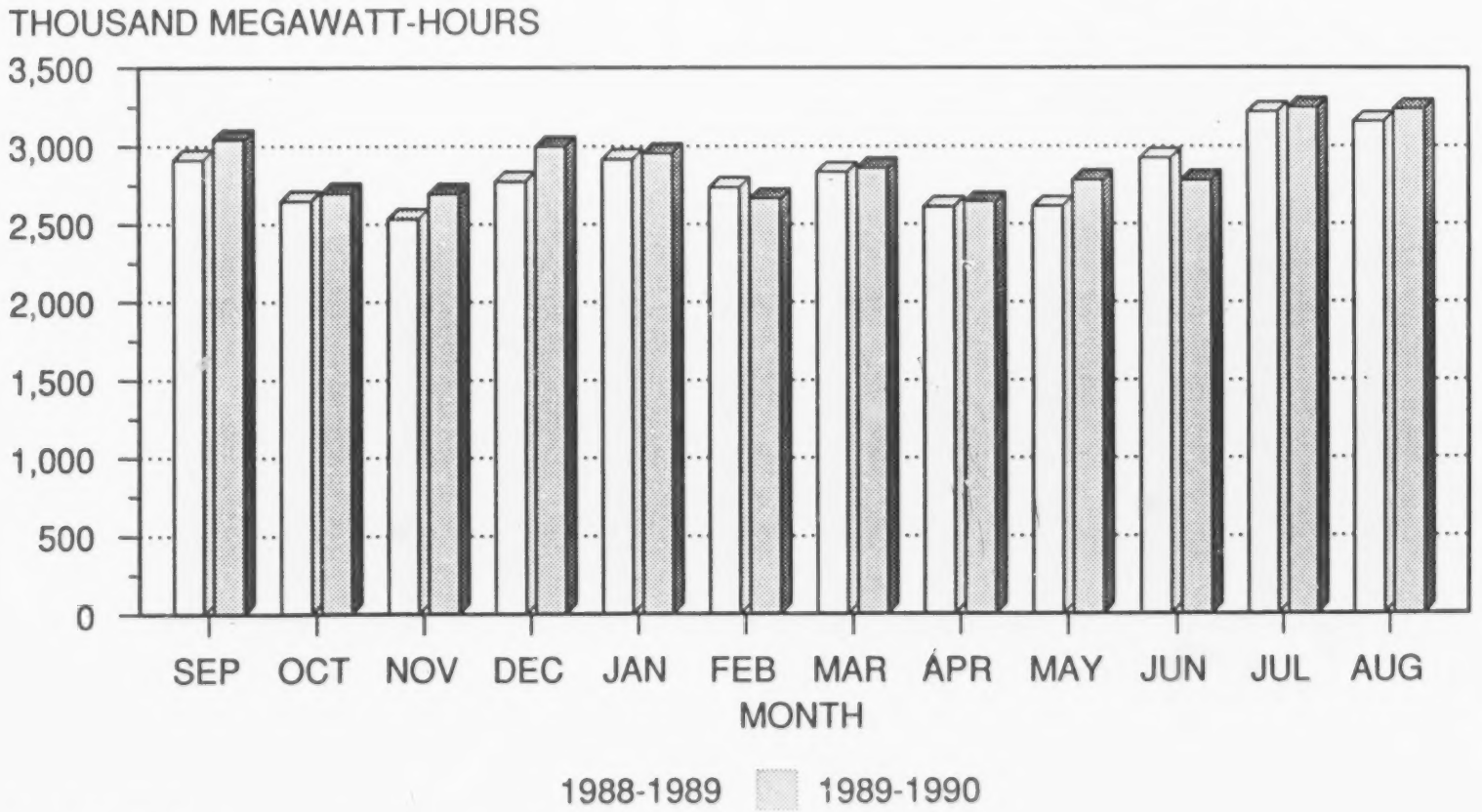
FIGURE 5-A. OHIO RESIDENTIAL ELECTRICITY CONSUMPTION [1,2]
1988 - 1989 VS. 1989 - 1990



1 Source: Table 6.

2 Does not include Buckeye Power.

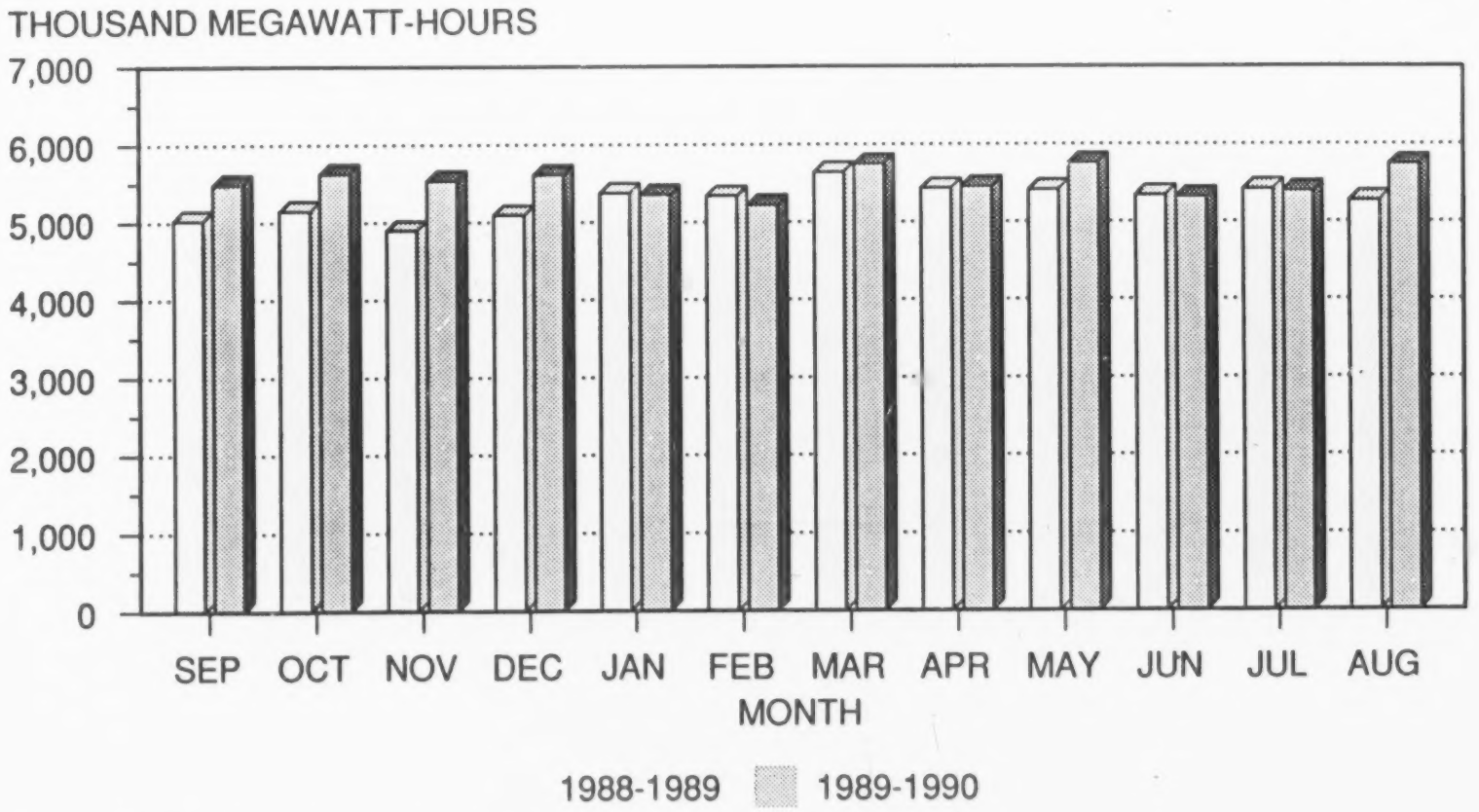
FIGURE 5-B. OHIO COMMERCIAL ELECTRICITY CONSUMPTION[1,2]
1988 - 1989 VS. 1989 - 1990



1 Source: Table 6.

2 Does not include Buckeye Power.

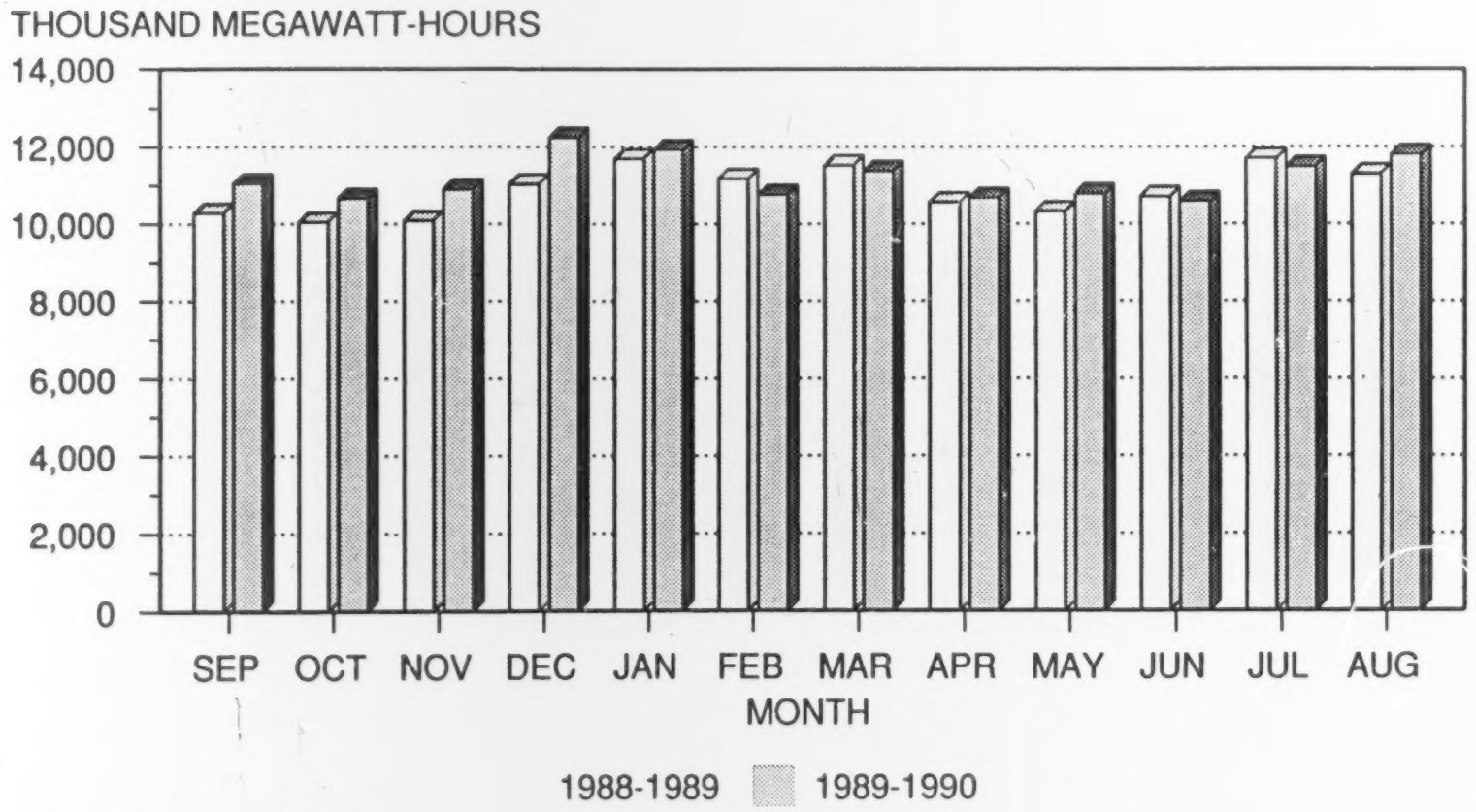
FIGURE 5-C. OHIO INDUSTRIAL ELECTRICITY CONSUMPTION [1,2]
1988 - 1989 VS. 1989 - 1990



1 Source: Table 6.

2 Does not include Buckeye Power.

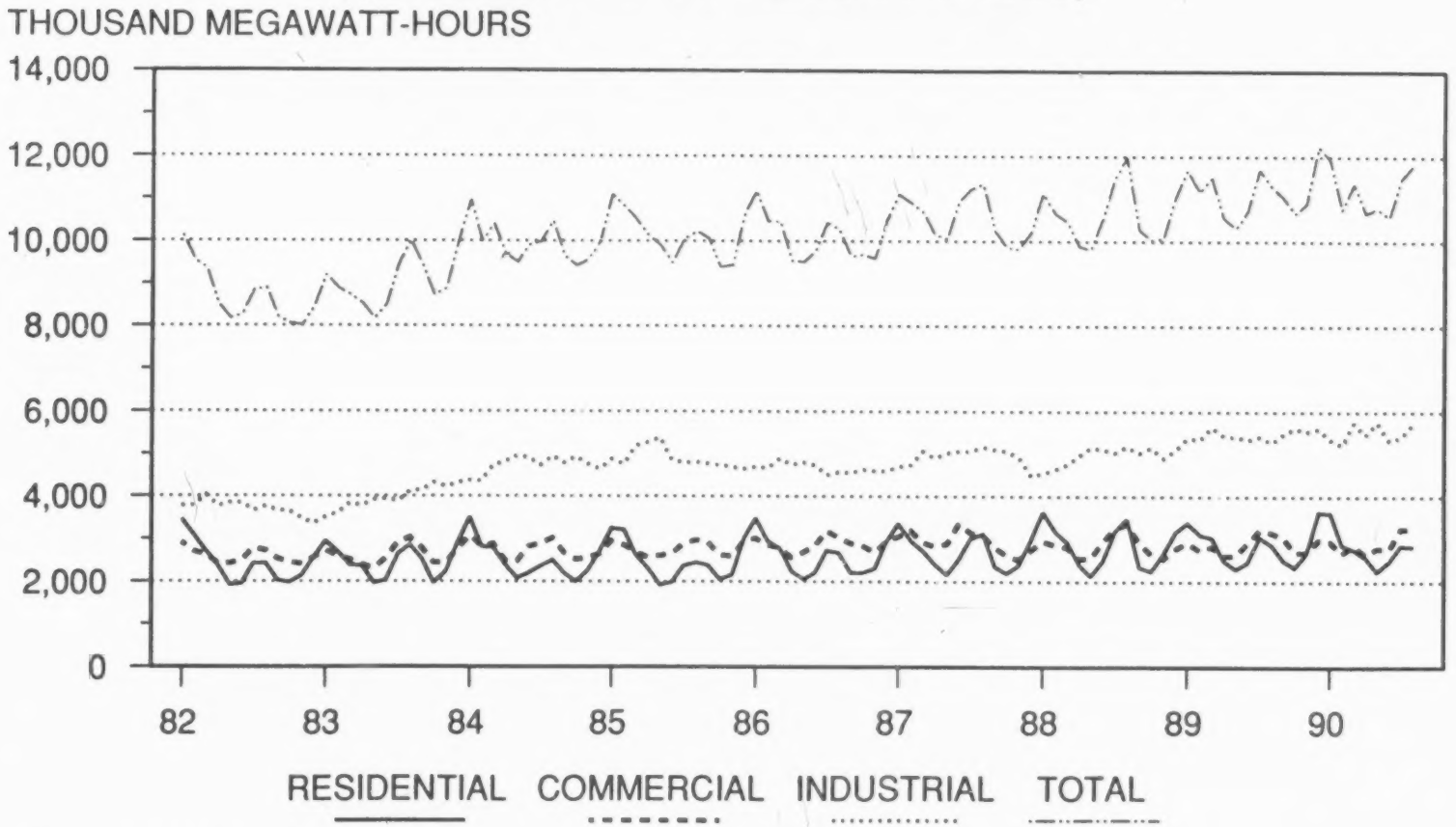
FIGURE 5-D. OHIO TOTAL ELECTRICITY CONSUMPTION [1,2]
1988 - 1989 VS. 1989 - 1990



1 Source: Table 6.

2 Does not include Buckeye Power.

FIGURE 5-E. MONTHLY ELECTRICITY CONSUMPTION[1,2]
(JANUARY 1982 - AUGUST 1990)



1 Source: PUCO SE-1.

2 Does not include Buckeye Power.

Table 7-A. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Coal for Electricity Generation[1], 1990-1991 (1000 Short Tons)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Allegheny Power System													
Deliveries	1,469	1,460	1,515	1,455	1,505	1,301	1,153	1,334	1,366	1,356	1,361	1,405	16,680
Consumption	1,338	1,502	1,575	1,445	1,466	1,310	1,299	1,315	1,381	1,365	1,310	1,335	16,661
Stocks	3,265	3,223	3,163	3,173	3,212	3,203	3,057	3,076	3,061	3,032	3,083	3,153	
American Electric Power													
Deliveries	4,175	4,081	4,228	3,981	4,093	4,054	4,131	3,843	3,845	4,111	3,839	4,085	48,466
Consumption	3,672	4,311	4,720	4,227	4,076	3,344	3,441	3,791	4,231	4,188	3,654	3,638	47,293
Stocks	13,102	12,872	12,380	12,134	12,151	12,861	13,551	13,603	13,217	13,140	13,325	13,772	
Buckeye Power Inc.													
Deliveries	196	180	219	168	157	155	210	162	181	185	183	191	2,187
Consumption	145	192	219	157	149	147	202	199	211	210	176	140	2,147
Stocks	522	510	510	521	529	537	545	508	478	453	460	511	
Cincinnati Gas & Electric													
Deliveries	606	666	678	594	600	633	630	695	750	720	741	723	8,038
Consumption	606	666	678	594	628	664	671	786	835	839	741	724	8,434
Stocks	1,527	1,527	1,527	1,527	1,499	1,468	1,427	1,336	1,251	1,132	1,132	1,131	
Cleveland Electric Ill.													
Deliveries	432	344	358	359	371	317	280	291	326	319	371	370	4,138
Consumption	436	344	298	277	290	230	268	290	333	316	393	392	3,867
Stocks	428	428	488	570	651	738	750	751	744	747	725	703	
Dayton Power & Light Co.													
Deliveries	601	688	691	657	607	526	592	574	622	607	586	551	7,302
Consumption	601	688	746	657	607	526	592	574	622	607	586	551	7,357
Stocks	962	962	907	907	907	907	907	907	907	907	907	907	
Ohio Edison System													
Deliveries	721	777	721	649	696	717	752	653	698	682	556	678	8,300
Consumption	721	778	721	649	696	717	752	653	698	682	556	678	8,301
Stocks	1,234	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	1,233	
Ohio Valley Electric Corp.													
Deliveries	715	710	633	558	610	656	654	648	681	670	581	598	7,714
Consumption	644	639	633	558	610	656	654	648	681	670	581	598	7,572
Stocks	1,384	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	1,435	
Toledo Edison Co.													
Deliveries	109	104	116	107	112	97	96	102	102	102	105	97	1,249
Consumption	109	85	93	71	107	85	87	79	86	79	106	102	1,049
Stocks	186	225	248	284	289	301	330	353	369	392	391	386	

1 Source: PUCO Form SE-3 and PUCO, Division of Forecasting.

Table 7-B. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Oil for Electricity Consumption[1], 1990-1991 (1000 Bbls)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Allegheny Power System													
Deliveries	0	0	0	0	0	0	0	0	0	0	0	0	0
Consumption	0	0	0	0	0	0	0	0	0	0	0	0	0
Stocks	130	130	130	130	130	130	130	130	130	130	130	130	
American Electric Power													
Deliveries	43	47	46	45	42	45	45	41	45	46	39	45	529
Consumption	43	47	46	45	42	45	45	41	45	46	39	45	529
Stocks	291	291	291	291	291	291	291	291	291	291	291	291	
Buckeye Power Inc.													
Deliveries	2	3	3	3	3	3	3	2	2	2	2	2	30
Consumption	2	3	3	3	3	3	3	2	2	2	2	2	30
Stocks	16	16	16	16	16	16	16	16	16	16	16	16	
Cleveland Electric Ill.													
Deliveries	25	29	34	30	31	22	20	19	17	17	17	20	281
Consumption	26	29	39	30	31	22	20	19	17	17	17	20	287
Stocks	141	141	136	136	136	136	136	136	136	136	136	136	
Cincinnati Gas & Electric													
Deliveries	18	18	30	40	40	0	0	10	30	30	18	10	244
Consumption	19	18	34	42	42	1	1	12	20	19	14	9	231
Stocks	121	121	117	115	113	112	111	109	119	130	134	135	
Dayton Power & Light													
Deliveries	7	24	3	1	105	0	0	0	0	2	20	0	162
Consumption	73	24	3	.	10	3	1	4	8	3	3	7	140
Stocks	73	73	73	73	168	165	164	160	152	151	168	161	
Ohio Edison System													
Deliveries	4	1	2	0	1	1	2	1	2	1	2	1	18
Consumption	4	1	2	0	1	1	2	1	2	1	2	1	18
Stocks	38	38	38	38	38	38	38	38	38	38	38	38	
Ohio Valley Electric Corp.													
Deliveries	2	2	2	2	2	2	2	2	2	2	2	2	20
Consumption	2	2	2	2	2	2	2	2	2	2	2	2	20
Stocks	6	6	6	6	6	6	6	6	6	6	6	6	
Toledo Edison Co.													
Deliveries	1	1	1	1	1	1	1	1	1	1	1	1	12
Consumption	1	1	1	1	1	1	1	1	1	1	1	1	12
Stocks	6	6	6	6	6	6	6	6	6	6	6	6	

1 Source: ODOE Form SE-3 and PUCO, Division of Forecasting.

Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model[1] (November 1990 - October 1991)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Allegheny Power System													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	3526	3966	4196	3859	3893	3472	3454	3516	3696	3715	3488	3569	44350
PROJ DAILY CONSUMPTION COAL (1000 TONS)	45	48	51	52	47	44	42	44	45	45	44	43	
COAL DELIVERIES IN 1000 TONS	1,469	1,460	1,515	1,455	1,505	1,301	1,153	1,334	1,366	1,356	1,361	1,405	16680
END OF MONTH STOCK COAL (1000 TONS)	3265	3223	3163	3173	3212	3203	3057	3076	3061	3032	3083	3153	
NUMBER OF DAYS SUPPLY COAL	73	67	62	61	68	73	73	70	69	68	71	73	
American Electric Power Company													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	8611	9825	10830	9722	9278	7869	7969	8589	9626	9512	8222	8115	108168
PROJ DAILY CONSUMPTION COAL (1000 TONS)	122	139	152	151	131	111	111	126	136	135	122	117	
COAL DELIVERIES IN 1000 TONS	4,175	4,081	4,228	3,981	4,093	4,054	4,131	3,843	3,845	4,111	3,839	4,085	48466
END OF MONTH STOCK COAL (1000 TONS)	13102	12872	12380	12134	12151	12881	13551	13603	13217	13140	13325	13772	
NUMBER OF DAYS SUPPLY COAL	107	93	81	80	92	115	122	108	97	97	109	117	
Cincinnati Gas & Electric Company													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	1426	1552	1577	1389	1477	1573	1588	1862	1958	1961	1730	1704	19797
PROJ DAILY CONSUMPTION COAL (1000 TONS)	20	21	22	21	20	22	22	26	27	27	25	23	
COAL DELIVERIES IN 1000 TONS	606	666	678	594	600	633	630	695	750	720	741	723	8038
END OF MONTH STOCK COAL (1000 TONS)	1527	1527	1527	1527	1499	1468	1427	1336	1251	1132	1132	1131	
NUMBER OF DAYS SUPPLY COAL	75	71	70	72	74	66	66	51	46	42	46	48	

1 Source: PUCO Form SE-3 and PUCO, Division of Forecasting.

Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model[2] (November 1990 - October 1991)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Cleveland Electric Illuminating Company													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	1,049	815	679	643	675	541	618	667	775	749	945	943	9099
PROJ DAILY CONSUMPTION COAL (1000 TONS)	15	11	10	10	9	8	9	10	11	10	13	13	
COAL DELIVERIES IN 1000 TONS	432	344	358	359	371	317	280	291	326	319	371	370	4138
END OF MONTH STOCK COAL (1000 TONS)	426	428	488	570	651	738	750	751	744	747	725	703	
NUMBER OF DAYS SUPPLY COAL	29	39	51	58	70	96	87	78	69	73	55	56	
Dayton Power & Light Company													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	1437	1641	1782	1565	1451	1249	1388	1366	1484	1449	1393	1326	17531
PROJ DAILY CONSUMPTION COAL (1000 TONS)	20	22	24	23	20	18	19	19	20	20	20	18	
COAL DELIVERIES IN 1000 TONS	601	688	691	657	607	526	592	574	622	607	586	551	7302
END OF MONTH STOCK COAL (1000 TONS)	982	982	907	907	907	907	907	907	907	907	907	907	
NUMBER OF DAYS SUPPLY COAL	46	43	38	39	46	52	47	47	45	46	46	51	
Ohio Edison System													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	1659	1784	1687	1520	1626	1667	1753	1527	1634	1605	1278	1577	19317
PROJ DAILY CONSUMPTION COAL (1000 TONS)	24	25	23	23	22	24	24	22	23	22	19	22	
COAL DELIVERIES IN 1000 TONS	721	777	721	649	696	717	752	653	698	682	556	678	8300
END OF MONTH STOCK COAL (1000 TONS)	1234	1233	1233	1233	1233	1233	1233	1233	1233	1233	1233	1233	
NUMBER OF DAYS SUPPLY COAL	51	49	53	53	55	52	51	57	55	56	87	56	

2 Source: PUCO Form SE-3 and PUCO, Division of Forecasting.

Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model[3] (November 1990 - October 1991)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Ohio Valley Electric Corporation													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	1517	1561	1529	1349	1485	1582	1572	1488	1591	1555	1368	1438	18035
PROJ DAILY CONSUMPTION COAL (1000 TONS)	21	21	20	20	20	22	21	22	22	22	19	19	
COAL DELIVERIES IN 1000 TONS	715	710	633	558	610	656	654	648	681	670	581	598	7714
END OF MONTH STOCK COAL (1000 TONS)	1364	1435	1435	1435	1435	1435	1435	1435	1435	1435	1435	1435	
NUMBER OF DAYS SUPPLY COAL	64	70	70	72	73	66	68	66	65	66	74	74	
Toledo Edison Company													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	289	167	236	183	279	230	176	200	219	201	278	278	2736
PROJ DAILY CONSUMPTION COAL (1000 TONS)	4	2	3	3	3	3	2	3	3	3	4	3	
COAL DELIVERIES IN 1000 TONS	109	104	116	107	112	97	96	102	102	102	105	97	1249
END OF MONTH STOCK COAL (1000 TONS)	186	225	248	284	289	301	330	353	369	392	391	386	
NUMBER OF DAYS SUPPLY COAL	51	107	83	112	84	106	153	134	133	154	111	117	

3 Source: PUCO Form SE-3 and PUCO, Division of Forecasting.

NATURAL GAS

Natural gas distribution companies operating in Ohio are classified into two categories with respect to their reporting requirements. Eight major companies, Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light, East Ohio Gas, National Gas and Oil, Ohio Gas, River Gas, and West Ohio Gas, report to the PUCO, Division of Forecasting every month. Eighteen small utilities and two municipal utilities report twice a year. This section is based upon the most recent reports of these utilities.

3.1 Supplies and Distribution

3.1.1 Sources of Supply

The major sources of natural gas supplies to the State of Ohio are presented in table 8, and the quantities supplied are shown graphically in figure 6. Table 9 presents the total natural gas requirements of each of the Ohio utilities and the State total.

From September 1989 through August 1990, the eight major gas distribution companies of Ohio, which together accounted for 98.07 percent of the reported natural gas distribution in the State, procured 629,131 MMCF of natural gas to meet Ohio's requirements. This represents a 5.37 percent increase in the procurement of natural gas for Ohio compared to the same period in the previous twelve months. This increase in procurement was attributed to large influx of supplies from the Columbia Gas Transmission Company during the months of November and December, procured in order to provide adequate natural gas in anticipation of a cold winter. As it turned out, Ohio encountered its coldest December (measured in terms of heating-degree days) recorded in the last 20 years.

Of the 629,131 MMCF of natural gas procured by these companies, interstate gas purchases comprised 92.32 percent. Purchases of Ohio gas comprised the remaining 7.68 percent of the total. The 48,305 MMCF of

Ohio production of natural gas purchased by the eight major gas utilities from September 1989 through August 1990 represents a 9.85 percent decrease in their purchases of Ohio's product from the preceding annual period.

Spot market purchases of interstate gas is the major source of supply for Ohio accounting for 45 percent of total supplies. Purchases from Columbia Gas Transmission Corporation and Consolidated Gas Supply Corporation provided an additional 29 percent of the natural gas procured by the eight major Ohio gas distribution companies from September 1989 through August 1990.

3.1.2 Distribution

Service shares of the gas distribution companies operating in Ohio are presented in table 9 for the annual period September l989 through August l990. During this period, the four large distribution companies - Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light and East Ohio Gas - jointly distributed 94.62 percent of the reported natural gas requirements of the State. The four intermediate sized companies - National Gas and Oil, Ohio Gas, River Gas and West Ohio Gas - distributed an additional 3.45 percent. The remaining 2.03 percent of the reported natural gas requirements were distributed by l8 small utilities and two municipal utilities. Total requirements of 633,130 MMCF reported in table 9 represents an increase of approximately 4.69 percent in the distribution of natural gas compared to the same period last year.

The behavior of monthly sector requirements between September 1989 and August 1990 versus the preceding annual period are comparatively presented in figures 7-A through 7-C. As these figures illustrate, residential sector requirements decreased 1.5 percent, commercial sector requirements increased 1.3 percent, and industrial sector requirements decreased 16.1 percent (this does not include industrial requirements met through direct purchases by industrial end-users, i.e. non-tariff sales). Figure 7-D combines the three sectors to comprise the total consumption for

the State which, as mentioned above, increased 4.5 percent from the previous year. Figure 7-E reveals the monthly relationship of each sector to the total requirement trend, from January 1982 through August 1990.

3.2 Historical Behavior of Interstate Natural Gas Supplies and Sectoral End-Use Requirements

3.2.1 Interstate Natural Gas Supplies

Until 1978, wellhead prices paid by interstate transmission companies to natural gas producers were under federal control. Starting in the early seventies, and especially after the OPEC oil price increase of 1973, the federally-regulated gas supply prices for interstate commerce lagged behind the unregulated prices which the product commanded at the wellhead for intrastate commerce. Consequently, there were supply shortages in the interstate natural gas markets during the heating season, whereas producing states such as Texas and Louisiana experienced an overabundance of supplies at all times.

In Ohio, which was about 90 percent dependent on interstate gas, a ban was imposed upon new customer hook-ups in 1972 and remained in effect until 1978. Similarly, base allocations of lower priority industrial and commercial customers were curtailed between 1973 and 1978. During the winter of 1976-1977, many interstate pipeline companies had to heavily curtail base allocations of their industrial customers due to lack of interstate gas supplies.

The Natural Gas Policy Act (NGPA) of 1978 deregulated some gas prices immediately, and legislated a phased decontrol of prices for many categories of natural gas by 1985. Pursuant to the passage of the NGPA, relatively unfettered increases in interstate gas prices have stimulated new and more costly gas production from deep wells, thus increasing available

supplies. However, many pipeline companies overreacted to market conditions by entering into take or pay contracts for the newly found and expensive deep gas reserves.

Increasing energy prices from 1972 on induced intensive conservation efforts on the part of consumers, as well as many state, federal and private agencies. As a result of these price induced conservation efforts, per customer energy consumption in general, and per customer natural gas consumption in particular, have declined almost continuously since 1972-1973. With the additional increases in natural gas costs of interstate pipeline companies between 1978-1982, the price of natural gas supplied by them rose well above the market equilibrium level dictated by the prevailing per customer demands and the enhanced availability of supplies.

This situation led to the development of a spot market for natural gas, where the price for large volume purchases was substantially lower than the price that interstate natural gas companies could offer due to their take or pay costs which required payment regardless of whether or not they actually distributed the gas. Consequently, increasing numbers of industrial customers obtained their requirements through direct purchases at the wellhead or through the spot market. The interstate pipelines and natural gas distribution utilities are being increasingly relegated to the position of common carriers of the natural gas of others. Recent FERC rulings have been supportive of this opening up of a regulated market to competitive pressures.

Since 1983, declining per customer requirements, enhanced supplies, and the thriving spot market have induced a downturn in natural gas prices to end-users in all sectors. In the last couple of years, natural gas prices have begun to level off. The Persian Gulf crisis and skyrocketing oil prices would normally push natural gas prices higher. However, a quick return to stability in oil markets, at lower prices, and the anticipated economic downturn are expected to moderate such pressures in the near future.

3.2.2 Annual Sectoral End-Use Requirements

Long-term trends in annual sectoral natural gas prices and sectoral natural gas requirements for Ohio are presented in tables 10 and 11, and Appendix B, figures B-5 through B-8. It is clear from these figures that the dynamic behavior of natural gas markets in Ohio has been characterized by increasing price trends from 1973 to 1983 and declining requirement trends since 1973.

As discussed in the preceding section, between 1970 and 1983, in response to a series of worldwide price shocks including the OPEC oil price increases of 1973 and 1978, the price of natural gas in Ohio increased nearly sevenfold in the residential and commercial sectors, and ninefold in the industrial sector (see table 10). These price increases far exceeded the increase in the rate of inflation (see table 11), or the rate of increase of the gross state product. Such significant and sustained increases in sectoral prices have induced significant and sustained conservation efforts among sectoral customers, which in turn have been translated into declining sectoral requirement trends.

In recent years industrial non-tariff sales, such as transportation procurements, have come to account for an ever increasing share of the total industrial requirement in Ohio (see table 15). This is due to the fact that non-tariff sales prices are determined in the spot market and are lower than the regulated prices for industrial tariff sales. The latter category of sales must reflect fully the fixed and variable costs of gas procurement and distribution, including take or pay contract costs and distribution company revenue requirements.

It should be noted, however, that the declining trends in industrial sector requirements represent not only the net outcomes of price induced energy conservation and fuel switching programs, but also a permanent loss in industrial capacity, especially in the older and more energy intensive manufacturing industries in Ohio.

3.2.3 Monthly Sectoral End-Use Requirements

The monthly time series behavior of residential, commercial, industrial and total natural gas requirements in Ohio from January 1982 through October 1990, along with the Division's independent forecasts for November 1990 through October 1991 are displayed in Appendix B, figures B-1 through B-4. The seasonal variations in residential and commercial requirements can easily be discerned from these figures as natural gas is the primary source of space heating in Ohio. Demand peaks in all sectors during the heating season and falls off during the cooling season.

3.3 Utility Forecasts: Consolidated Results and Twelve Month Outlook

3.3.1 Consolidated Results

Aggregate supply and demand projections of the eight major utilities, as presented in table I2 and figure 8, indicate a 0.0 percent annual shortage of natural gas supplies over requirements. All eight utilities project supply to be exactly equal to requirements during the I989-1990 heating season. Supply and demand projections of the individual utilities, as submitted in their "Monthly Reports of Supply and Demand of Natural Gas", are summarized in Appendix B, table B-9.

Table 13 shows the actual aggregate monthly sector requirements for the eight major utilities from September 1989 through August 1990, along with the utility companies' consolidated projections for the September 1990 through August 1991 period. The consolidated companies' forecast projects decreases in demand for the residential and industrial sectors and a slight increase for the commercial sector. Figure 9 is a graphic presentation of the utilities' consolidated sectoral projections for the forecast period. Overall, the consolidated companies' forecast of total annual gas requirements shows an increase of 0.6 percent relative to the same

twelve month period last year.

Actual and company forecasted aggregate supply of natural gas by source is displayed in table 14. Total supplies are expected to decrease 0.8 percent over the previous twelve month period. The majority of this supply, roughly 82.1 percent, will continue to come from out-of-state sources. Spot market purchases are projected to account for 66.0 percent of total supplies. Columbia Gas Transmission Corporation is projected to supply an additional 4.6 percent of natural gas demand, while Consolidated Natural Gas is projected to supply 10.7 percent.

3.3.2 Twelve Month Outlook

On the basis of the utility companies' natural gas supply and sectoral requirement projections, the outlook for the next twelve months indicates no supply shortages in Ohio, under both normal and 10 percent colder than normal weather conditions.

The PUCO, Division of Forecasting will be monitoring developments in the supplies and requirements of natural gas throughout the rest of the year and will take appropriate action if a critical situation develops. The prevailing conditions portend no shortages or curtailments of natural gas during the 1990-1991 heating season.

3.4 Division of Forecasting Independent Forecast

3.4.1 Results

The results obtained on the basis of the Division of Forecasting's independent forecast of sector requirements and the utility companies' forecasts of supplies are presented in tables 16 through 20, for the 1989-1990 heating season. Summary results presented in table 16 indicate sufficient supplies for both normal weather conditions and in the case of a 10 percent colder than normal winter.

The Division of Forecasting's independent forecasts for the four major utilities are compared with each company's forecast for the period from November 1990 through October 1991 in Appendix B, tables B-1 through B-4. The Division's forecasts of sector end-use gas requirements for Ohio are presented in Appendix B, tables B-5 through B-8. These have been adjusted for the long-term historical trends observed in sector natural gas requirements in the State. Finally, for comparison, Appendix B, table B-9 displays twelve month forecasts, produced monthly by each utility company and reported to the Division of Forecasting.

3.4.2 Long-Term Outlook

Any unexpected changes in the short-term behavior of residential and commercial requirements would mainly be associated with variations in the severity of the heating season and alterations in the long-term trends followed by natural gas prices. Since 1983, natural gas prices in Ohio have been declining in all sectors. Though there is currently an abundance of natural gas supplies nationwide, the drilling activity of new wells has dropped dramatically since 1985. It is expected, however, that no supply induced pressures shall come to bear on natural gas prices for the next couple of years. The price induced conservation efforts since 1972 have led to dramatic declines in per customer natural gas consumption in the residential and commercial sectors. Further conservation efforts are bound to be more costly, and given the current level of natural gas prices, less cost effective in the short run. Consequently, the decline in per customer demands are expected to level off in the residential and commercial sectors. Industrial sector consumption may further decline in response to the prevailing recessionary conditions in the economy. Until the recovery phase of the current business cycle sets in, which may take two to four years, demand induced pressures on natural gas prices should remain negligible, and the overall price level should remain relatively stable.

3.4.3 Emergency Response Capability

There have been no natural gas curtailments in Ohio since 1978, and neither Ohio natural gas utilities nor the gas pipeline companies project any curtailments through August 1991. However, in the event of a shortage, it is anticipated that the fuel-switching capability of industrial and large commercial users would be accelerated. Detailed emergency plans that describe strategies to respond to fuel supply shortfalls are on file at the PUCO, Division of Forecasting.

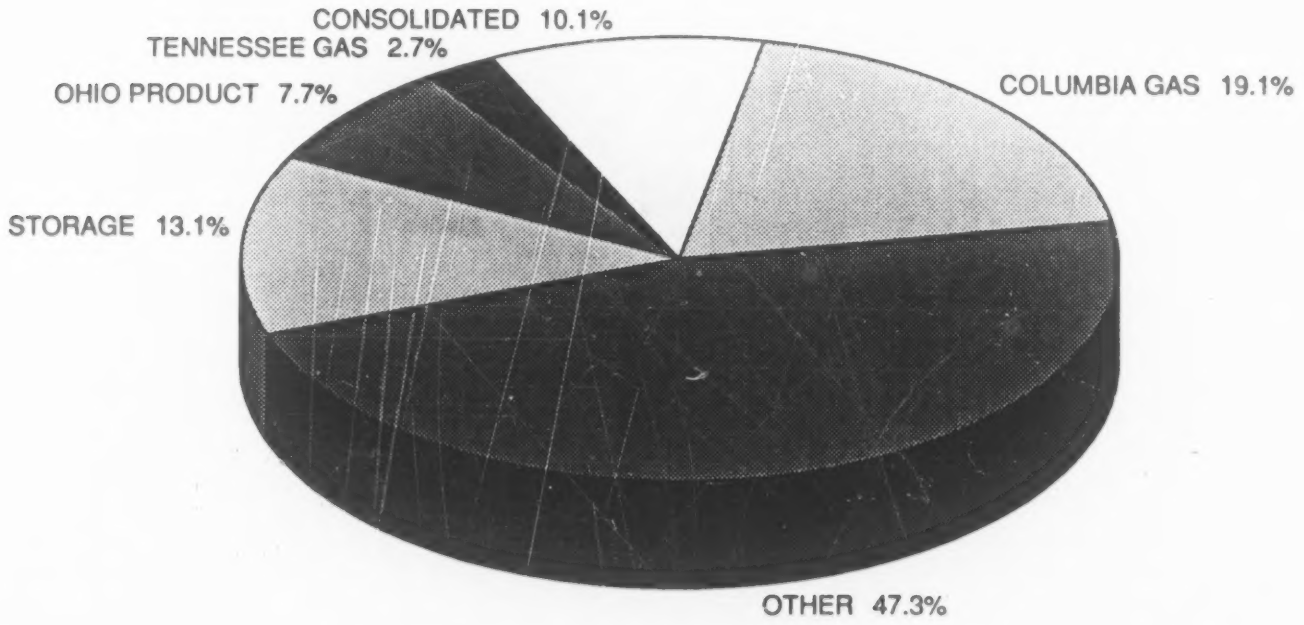
Table 8. Sources of Natural Gas Supplies to the Eight Major Gas Utilities[1]
September 1989 - August 1990
(MMCF)

	Supply	Percent of Total	Rank
Columbia Gas Transmission Corp.	120,341	19.13	2
Consolidated Gas Supply Corp.	63,677	10.12	4
Michigan/Wisconsin Pipeline Co.	77	0.01	10
Panhandle Eastern Pipeline Co.	1,915	0.30	8
Tennessee Gas Pipeline Co.	16,912	2.69	6
Texas Eastern Transmission Corp.	2,320	0.37	7
Texas Gas Transmission Corp.	1,499	0.24	9
Storage/Propane[2]	82,594	13.13	3
Other	291,491	46.33	1
Total Out-of-State	**580,826**	**92.32**	
Ohio Product	48,305	7.68	5
TOTAL	**629,131**	**100.00**	

1 Source: PUCO Form SG-2.

2 Gas withdrawn from storage is a source of supply during the accounting period under consideration.

FIGURE 6. SOURCES OF NATURAL GAS SUPPLY[1] FOR EIGHT MAJOR GAS UTILITIES (SEPTEMBER 1989 - AUGUST 1990)



1 Source: Table 8.

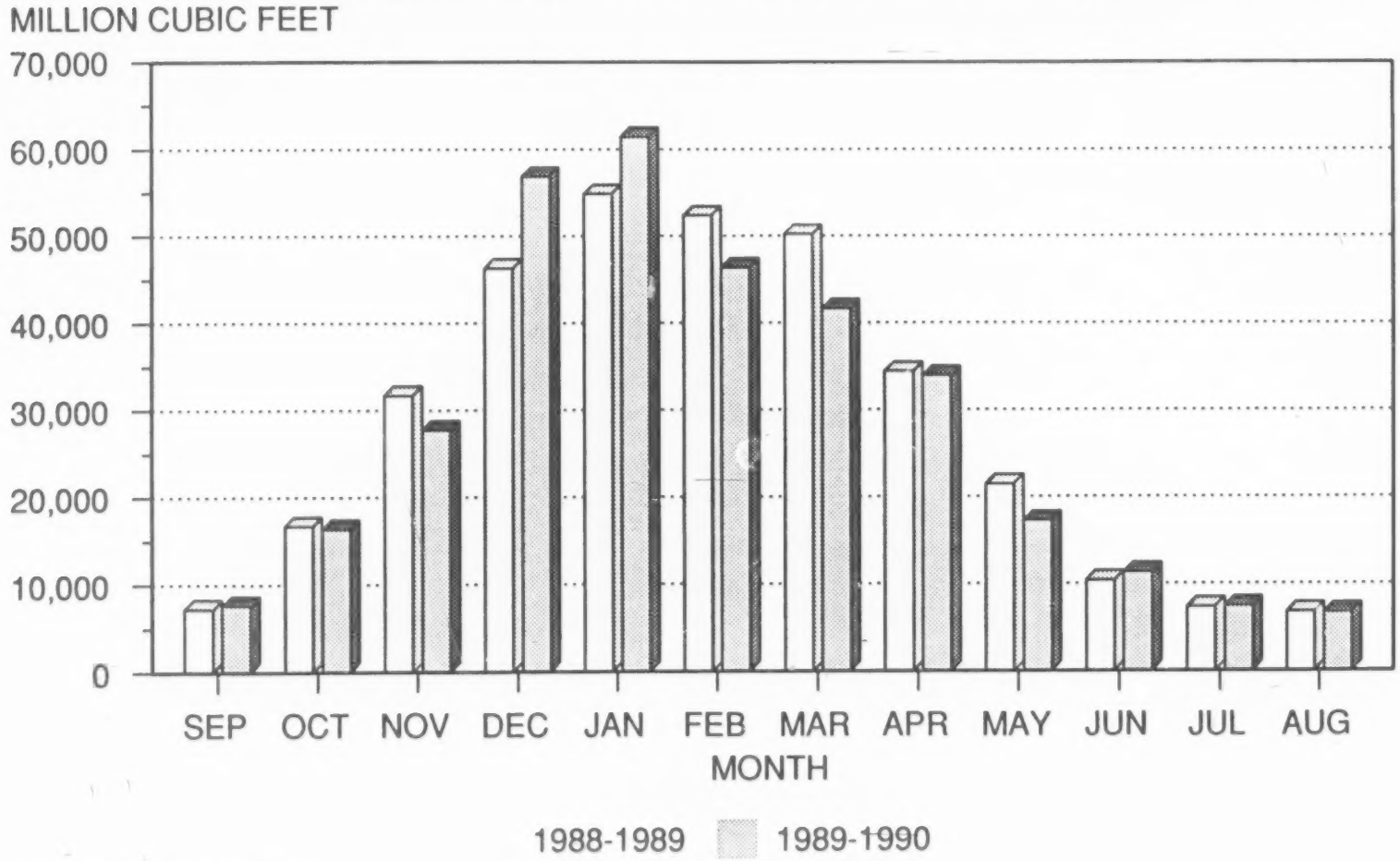
Table 9. Total Natural Gas Requirements of All Commercial Utilities in Ohio[1]
September 1989 through August 1990
(MMCF)

Company	Sales to All End Users	Storage[2] (In)	Total Requirement (1+2)	Percent of Total Ohio Requirement
Cincinnati Gas and Electric Co.	67,527	0	67,527	10.67
Columbia Gas of Ohio	185,323	37,430	222,753	35.18
Dayton Power and Light Co.	47,550	0	47,550	7.51
East Ohio Gas Co.	200,415	60,166	260,581	41.16
National Gas and Oil Co.	2,961	554	3,515	0.56
Ohio Gas Co.	5,782	0	5,782	0.91
River Gas Co.	2,776	381	3,157	0.50
West Ohio Gas Co.	9,370	0	9,370	1.48
Total Eight Major Utilities	**521,704**	**98,531**	**620,235**	**97.97**
Total Small Utilities	5,222	0	5,222	0.82
Municipal Utilities	7,673	0	7,673	1.21
TOTAL	**534,599**	**98,531**	**633,130**	**100.00**

1 Source: PUCO Form SG-2 and SG-4.

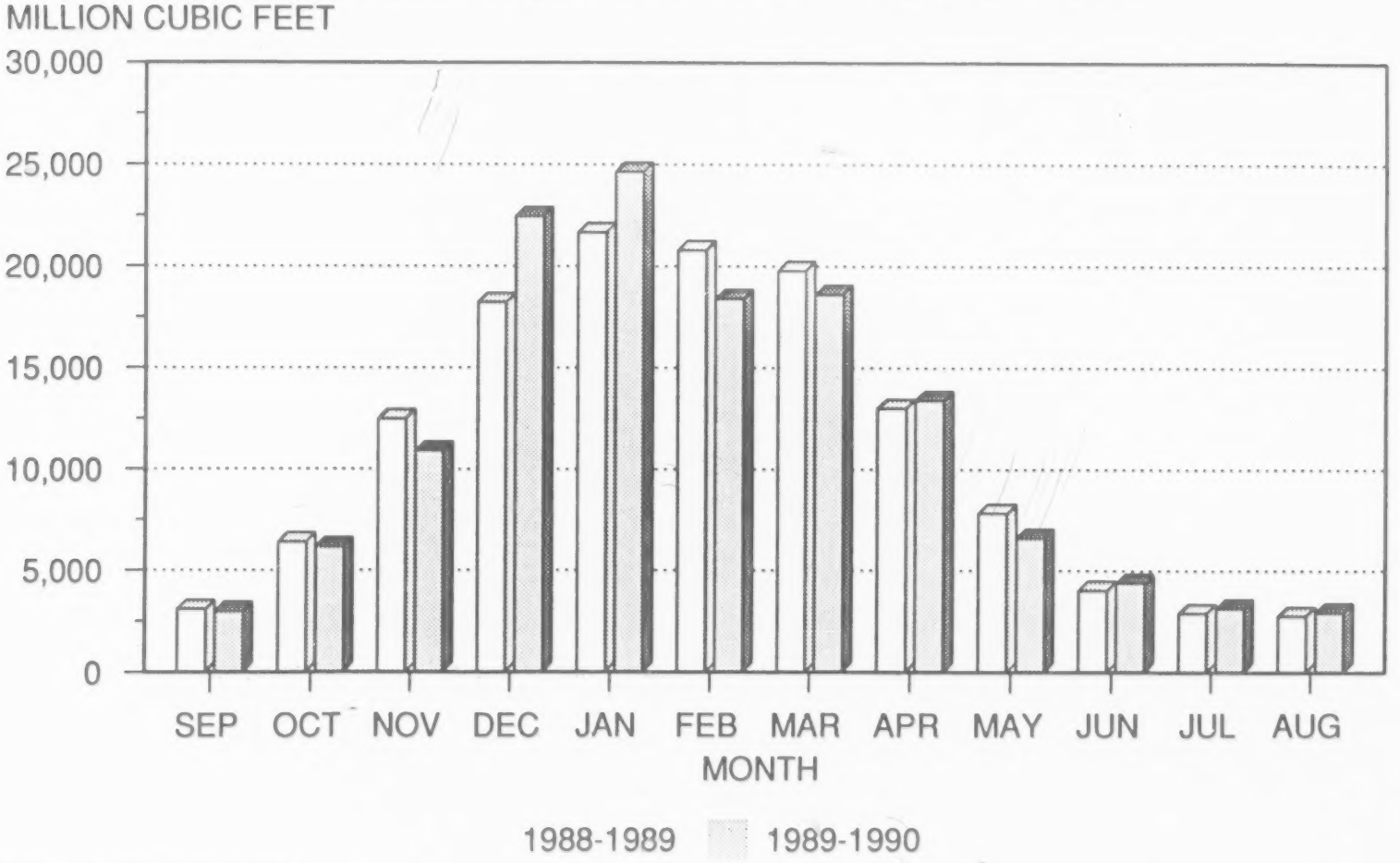
2 Gas injected to storage is a requirement to be met by the State's natural gas utilities during the accounting period under consideration.

FIGURE 7-A. OHIO RESIDENTIAL SECTOR NATURAL GAS[1] CONSUMPTION: 1988-1989 VS. 1989-1990



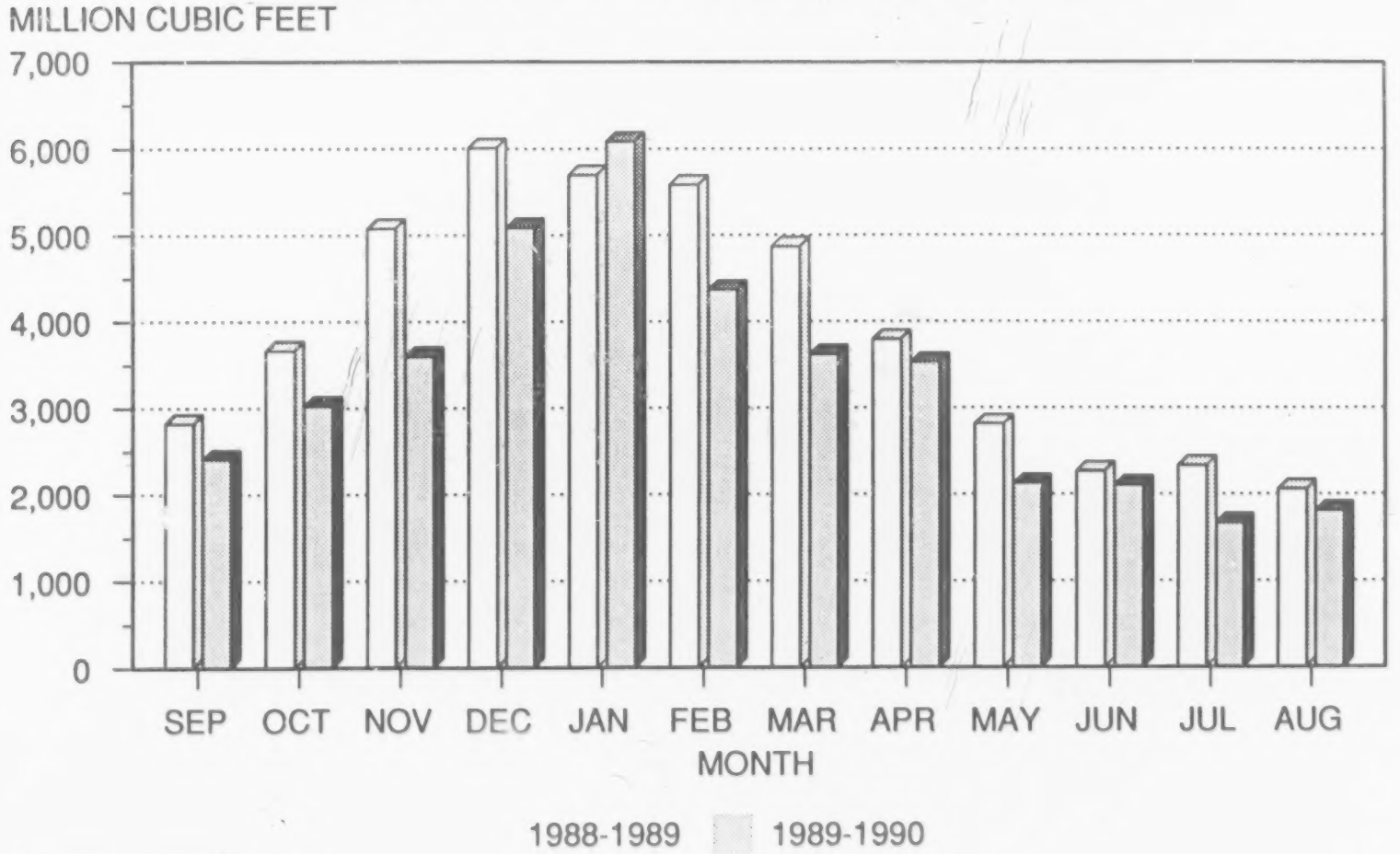
1 Source: PUCO Form SG-1.

FIGURE 7-B. OHIO COMMERCIAL SECTOR NATURAL GAS[1] CONSUMPTION: 1988-1989 VS. 1989-1990



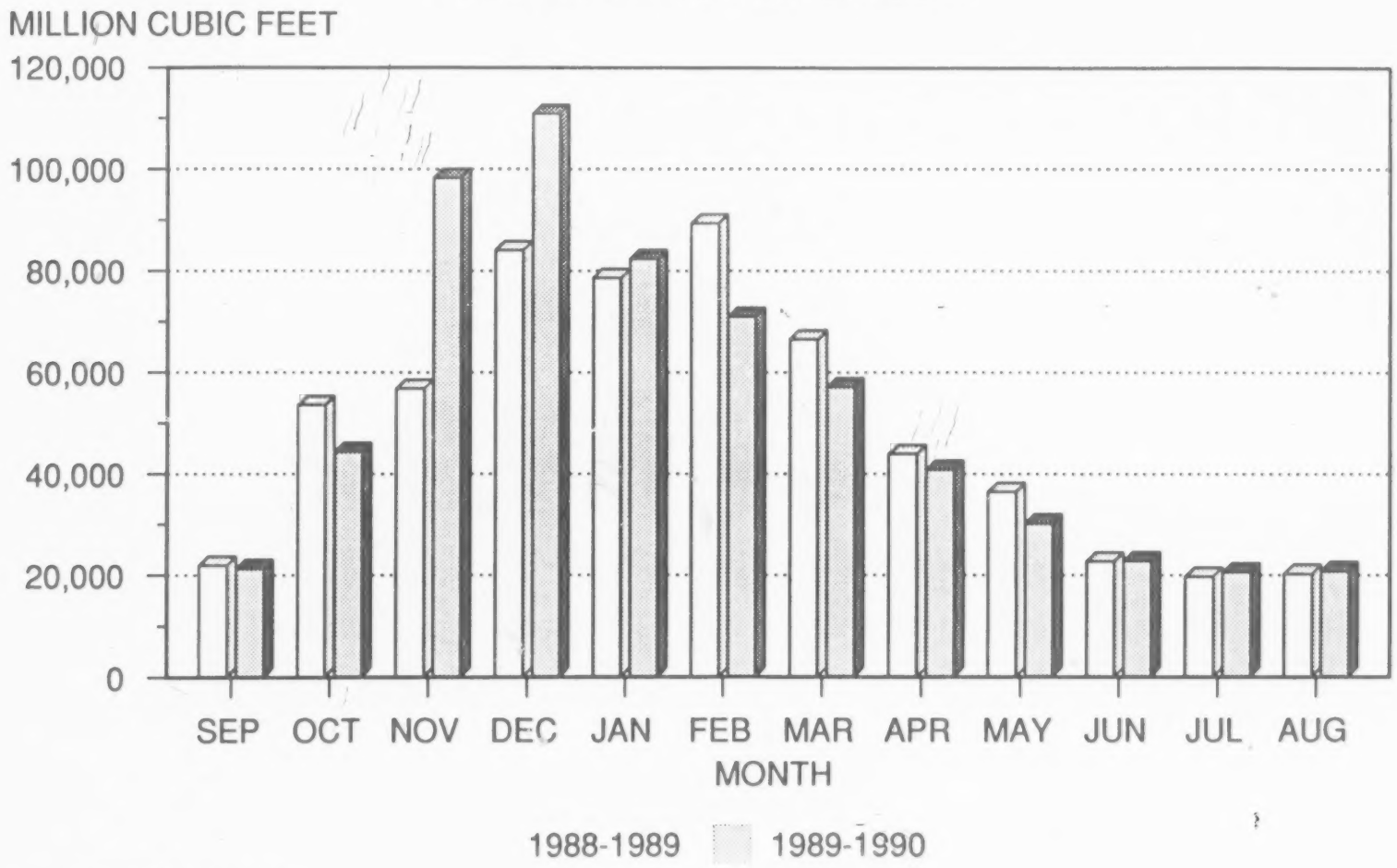
1 Source: PUCO Form SG-1.

FIGURE 7-C. OHIO INDUSTRIAL SECTOR NATURAL GAS[1] CONSUMPTION: 1988-1989 VS. 1989-1990



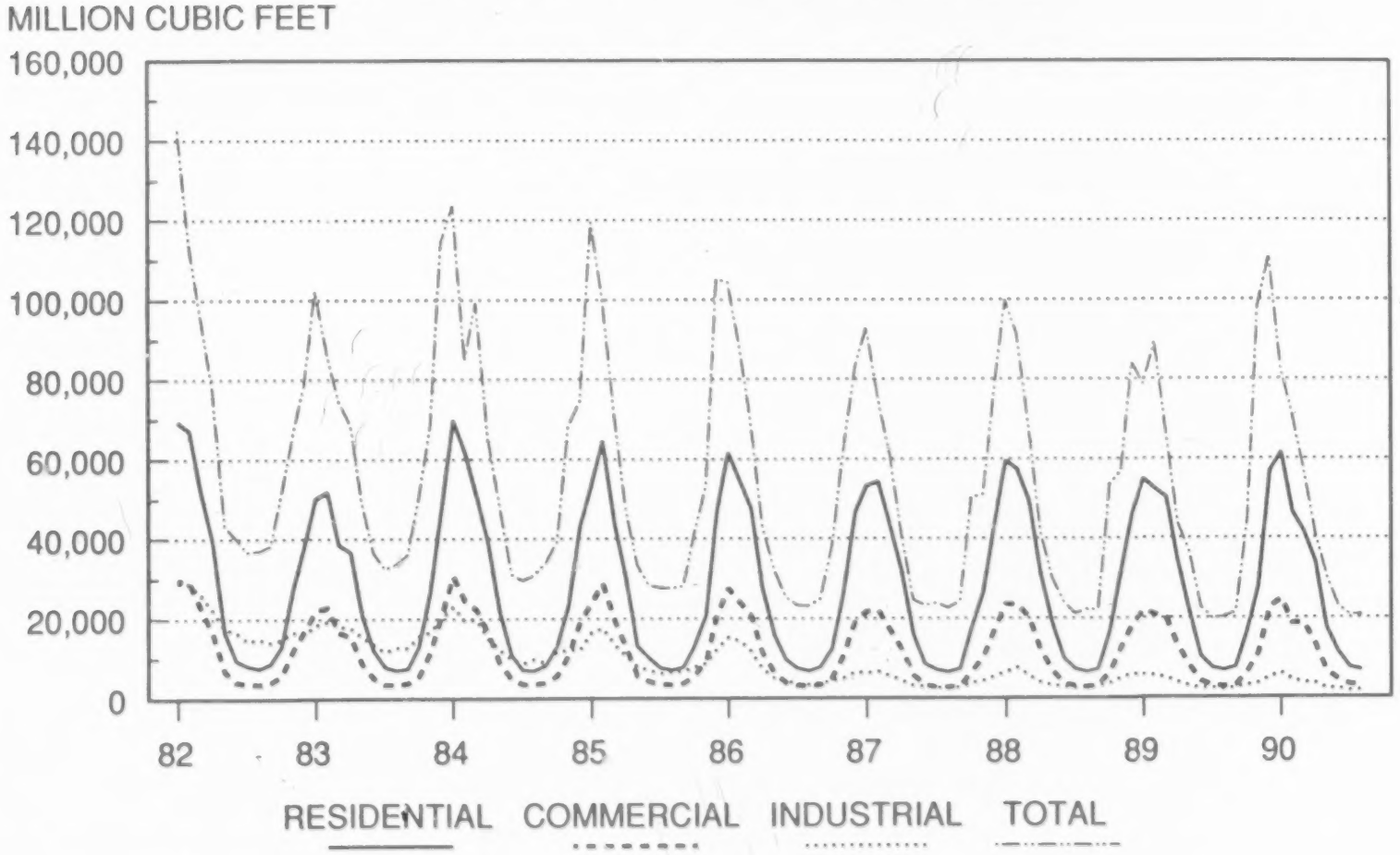
1 Source: PUCO Form SG-1.

FIGURE 7-D. TOTAL OHIO NATURAL GAS CONSUMPTION[1]
1988-1989 VS. 1989-1990



1 Source: PUCO Form SG-1.

FIGURE 7-E. MONTHLY GAS CONSUMPTION[1]
(JANUARY 1982 - AUGUST 1990)



1 Source: Monthly Gas Report.

Table 10. Ohio Natural Gas Prices in Current Dollars[1]
1970-1989
($ Per MCF)

Year	Residential	Commercial	Industrial
1970	0.91	0.78	0.56
1971	0.98	0.84	0.58
1972	1.04	0.89	0.64
1973	1.11	0.93	0.68
1974	1.26	1.09	0.87
1975	1.55	1.38	1.16
1976	1.83	1.68	1.50
1977	2.32	2.15	1.99
1978	2.47	2.31	2.08
1979	2.87	2.64	2.40
1980	3.58	3.27	3.05
1981	3.96	3.62	3.43
1982	4.91	4.54	4.33
1983	6.06	5.58	5.17
1984	5.94	5.56	5.05
1985	6.04	5.45	4.92
1986	5.80	5.26	4.68
1987	5.38	4.95	4.11
1988	5.18	4.74	3.88
1989	5.33	4.90	4.27

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

Table 11. Ohio Natural Gas Prices in Constant Dollars[1]
1970-1989
($ Per MCF)

Year	Residential[2]	Commercial[2]	Industrial[2]
1970	0.78	0.67	0.48
1971	0.81	0.69	0.48
1972	0.83	0.71	0.51
1973	0.83	0.70	0.51
1974	0.85	0.74	0.59
1975	0.96	0.86	0.72
1976	1.07	0.99	0.88
1977	1.28	1.18	1.10
1978	1.26	1.18	1.06
1979	1.32	1.21	1.10
1980	1.45	1.32	1.24
1981	1.45	1.33	1.26
1982	1.70	1.59	1.50
1983	2.03	1.87	1.73
1984	1.91	1.79	1.62
1985	1.87	1.69	1.53
1986	1.77	1.60	1.43
1987	1.58	1.45	1.21
1988	1.46	1.34	1.09
1989	1.44	1.32	1.15

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.
2 All prices are stated in terms of 1967 dollars.

Table 12. Projected Aggregate Supply and Demand for Natural Gas for the Eight Major Utilities[1] September 1990 - August 1991 (MMCF)

Month	Supply	Demand	Deficiency[2]	Percent Deficiency
September	24,206	24,206	0	0.00
October	39,841	39,841	0	0.00
November	59,364	59,364	0	0.00
December	79,697	79,697	0	0.00
January	99,604	99,604	0	0.00
February	86,815	86,815	0	0.00
March	73,488	73,488	0	0.00
April	44,521	44,521	0	0.00
May	37,113	37,113	0	0.00
June	27,758	27,758	0	0.00
July	26,638	26,638	0	0.00
August	25,221	25,221	0	0.00
TOTALS				
Summer[3]	225,298	225,298	0	0.00
Winter[4]	398,968	398,968	0	0.00
Annual	624,266	624,266	0	0.00

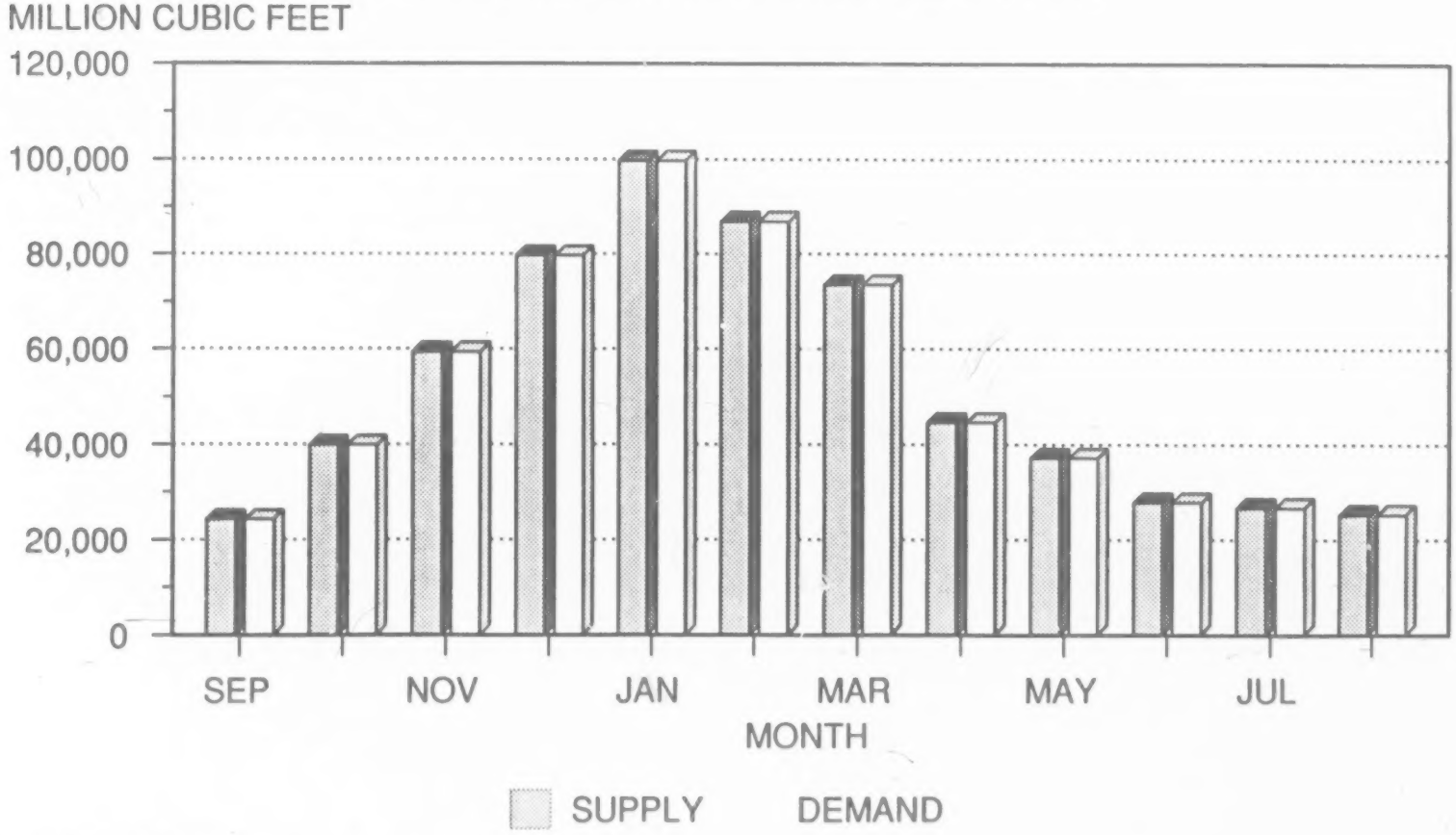
1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

2 A positive deficiency indicates a shortage and a negative deficiency indicates a surplus.

3 Summer months include Apr, May, Jun, Jul, Aug, Sep, Oct.

4 Winter months include Nov, Dec, Jan, Feb, Mar.

FIGURE 8. PROJECTED SUPPLY AND REQUIREMENTS OF NATURAL GAS BY SECTOR: TOTAL OF EIGHT MAJOR COMPANIES[1] (SEPTEMBER 1990 - AUGUST 1991)



1 Source: Table 12.

Table 13. Comparison Between One Year of Actual and Forecast Demand For Eight Major Ohio Natural Gas Utilities By Sector (MMCF)

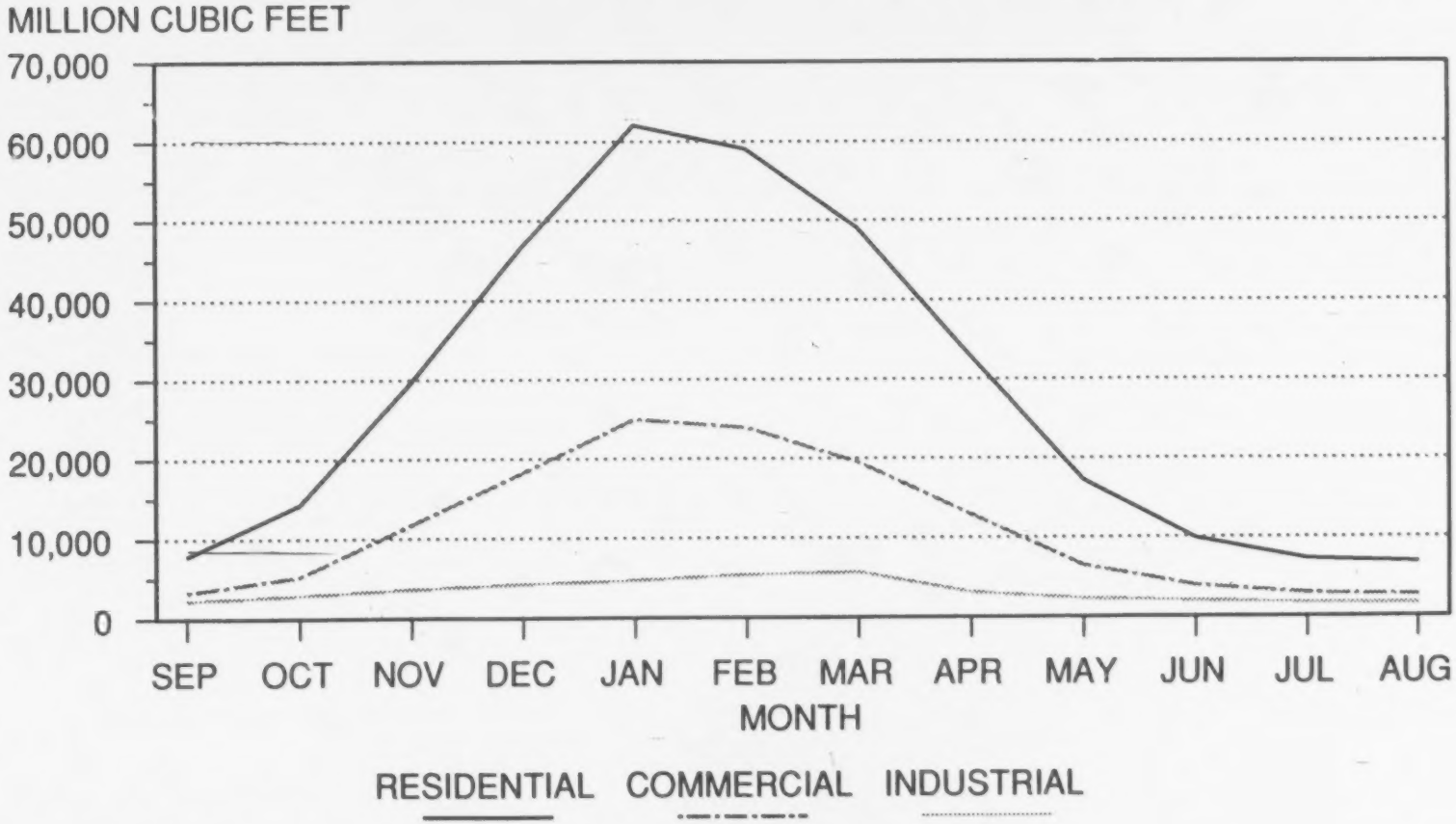
MONTH/YEAR	DEGREE-DAYS	RESIDENTIAL REQUIREMENT	COMMERCIAL REQUIREMENT	INDUSTRIAL REQUIREMENT	OTHER REQUIREMENT	STORAGE (IN)	TOTAL REQUIREMENT	DEFICIENCY
9/90	87	7790	3226	2277	2229	8684	24206	0
9/89	87	7595	2983	2408	-1093	9375	21268	-810
	0.0%	2.6%	8.1%	-5.4%	303.9%	-7.4%	13.8%	100.0%
10/90	334	14207	5243	2886	8678	8827	39841	0
10/89	334	16353	6161	3025	8290	10475	44304	-706
	0.0%	-13.1%	-14.9%	-4.6%	4.7%	-15.7%	-10.1%	100.0%
11/90	690	29639	11685	3577	10284	4179	59364	0
11/89	686	27712	10886	3600	20144	35991	98333	-830
	0.6%	7.0%	7.3%	-0.6%	-48.9%	-88.4%	-39.6%	100.0%
12/90	1052	46776	18210	4214	10122	375	79697	0
12/89	1028	56839	22439	5084	25863	663	110888	-1169
	2.3%	-17.7%	-18.8%	-17.1%	-60.9%	-43.4%	-28.1%	100.0%
1/91	1141	62002	24912	4694	6670	1326	99604	0
1/90	1124	61406	24635	6080	-10408	562	82275	-216
	1.5%	1.0%	1.1%	-22.8%	164.1%	135.9%	21.1%	100.0%
2/91	980	58991	23885	5405	-2792	1326	86815	0
2/90	977	46358	18401	4367	1807	7	70940	-586
	0.3%	27.3%	29.8%	23.8%	-254.5%	18842.9%	22.4%	100.0%
3/91	823	49024	19480	5681	-697	0	73488	0
3/90	814	41638	18599	3618	-7526	731	57060	-583
	1.1%	17.7%	4.7%	57.0%	90.7%	-100.0%	28.8%	100.0%
4/91	735	32905	12877	3123	-6289	1905	44521	0
4/90	455	33934	13383	3529	-12826	2776	40796	-651
	61.5%	-3.0%	-3.8%	-11.5%	51.0%	-31.4%	9.1%	100.0%
5/91	202	17250	6436	2265	-4762	15924	37113	0
5/90	196	17270	6590	2122	-4708	8924	30198	-938
	3.1%	-0.1%	-2.3%	6.7%	-1.1%	78.4%	22.9%	100.0%
6/91	30	9849	3857	2002	-3720	15770	27758	0
6/90	29	11305	4378	2100	-4538	9515	22760	-786
	3.4%	-12.9%	-11.9%	-4.7%	18.0%	65.7%	22.0%	100.0%
7/91	5	7248	2924	1716	-1115	15865	26638	0
7/90	5	7445	3133	1665	-1658	9996	20581	-954
	0.0%	-2.6%	-6.7%	3.1%	32.8%	58.7%	29.4%	100.0%
8/91	11	6817	2687	1655	-928	14990	25221	0
8/90	11	6719	2942	1809	-154	9516	20832	-667
	0.0%	1.5%	-8.7%	-8.5%	-502.6%	57.5%	21.1%	100.0%
SUMMER TOTAL								
	1404	96066	37250	15924	-5907	81965	225298	0
	1117	100621	39570	16658	-14687	60577	200739	-5512
	25.7%	-4.5%	-5.9%	-4.4%	64.6%	35.3%	12.2%	100.0%
WINTER TOTAL								
	4686	246432	98172	23571	23587	7206	398968	0
	4629	233953	94960	22749	29880	37954	419496	-3384
	1.2%	5.3%	3.4%	3.6%	-21.1%	-81.0%	-4.9%	100.0%
YEAR TOTAL								
	6090	342498	135422	39495	17680	89171	624266	0
	5746	334574	134530	39407	13193	98531	620235	-8896
	6.0%	2.4%	0.7%	0.2%	34.0%	-9.5%	0.6%	100.0%

- NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

(3) A POSITIVE DEFICIENCY INDICATES SHORTAGE, A NEGATIVE DEFICIENCY INDICATES SURPLUS.

FIGURE 9. PROJECTED REQUIREMENTS OF NATURAL GAS[1] BY SECTOR: EIGHT MAJOR COMPANIES (SEPTEMBER 1990 - AUGUST 1991)



1 Source: Table 13.

Table 14. Comparison Between One Year of Actual and Forecast Supply For Eight Major Ohio Natural Gas Utilities By Source (MMCF)

MO/YR	COLUMBIA GAS	CONSOLID-ATED GAS	LAWREN-CEBURG	MICH. WISC.	PANHANDLE EAST	TENN. GAS	TEXAS EASTERN	TEXAS GAS	EMERG GAS	OHIO PRODUCT	SNG	STORAGE/ PROPANE	OTHER	TOTAL SUPPLIES
9/90	556	1663	0	15	1	0	173	0	0	3985	0	210	17603	24206
9/89	237	2596	0	11	226	0	232	0	0	4414	0	306	14056	22078
	134.6%	-35.9%	0.0%	36.4%	-99.6%	0.0%	-25.4%	0.0%	0.0%	-9.7%	0.0%	-31.4%	25.2%	9.6%
10/90	1176	9454	0	37	50	0	126	0	0	3965	0	217	24816	39841
10/89	86	8015	0	0	28	1559	212	0	0	4347	0	535	30228	45010
	1267.4%	18.0%	0.0%	999.9%	78.6%	-100.0%	-40.6%	0.0%	0.0%	-8.8%	0.0%	-59.4%	-17.9%	-11.5%
11/90	2799	10543	0	46	100	0	282	0	0	3719	0	5818	36057	59364
11/89	38780	10892	0	0	248	1510	231	0	0	4395	0	7335	35772	99163
	-92.8%	-3.2%	0.0%	999.9%	-59.7%	-100.0%	22.1%	0.0%	0.0%	-15.4%	0.0%	-20.7%	0.8%	-40.1%
12/90	4404	8461	0	55	250	0	220	0	0	3849	0	14888	47570	79697
12/89	41847	20568	0	3	590	1516	208	0	0	3848	0	16298	27179	112057
	-89.5%	-58.9%	0.0%	1733.3%	-57.6%	-100.0%	5.8%	0.0%	0.0%	0.0%	0.0%	-8.7%	75.0%	-28.9%
1/91	5054	12771	0	74	400	0	258	0	0	3805	0	18696	58546	99604
1/90	16847	9658	0	24	132	1588	270	1407	0	4066	0	21343	27156	82491
	-70.0%	32.2%	0.0%	208.3%	203.0%	-100.0%	-4.4%	-100.0%	0.0%	-6.4%	0.0%	-12.4%	115.6%	20.7%
2/91	4878	12654	0	68	200	0	312	0	0	3769	0	13837	51097	86815
2/90	13837	7399	0	20	217	1424	301	69	0	3717	0	15442	28900	71526
	-64.7%	71.0%	0.0%	240.0%	-7.8%	-100.0%	3.7%	-100.0%	0.0%	1.4%	0.0%	-11.5%	76.8%	21.4%
3/91	4736	10051	0	46	40	0	326	0	0	3521	0	9233	45535	73488
3/90	6967	3251	0	19	138	1573	239	13	0	3815	0	12296	29332	57643
	-32.0%	209.2%	0.0%	142.1%	-71.0%	-100.0%	36.4%	-100.0%	0.0%	-7.7%	0.0%	-24.9%	55.2%	27.5%
4/91	2480	12	0	41	40	0	219	0	0	3488	0	4602	33639	44521
4/90	785	748	0	0	195	1472	153	10	0	3842	0	7565	26677	41447
	215.9%	-98.4%	0.0%	999.9%	-79.5%	-100.0%	43.1%	-100.0%	0.0%	-9.2%	0.0%	-39.2%	26.1%	7.4%
5/91	1230	1136	0	16	10	0	148	0	0	3425	0	292	30856	37113
5/90	44	406	0	0	15	1591	15	0	0	4231	0	432	24402	31136
	2695.5%	179.8%	0.0%	999.9%	-33.3%	-100.0%	886.7%	0.0%	0.0%	-19.0%	0.0%	-32.4%	26.4%	19.2%
6/91	703	1	0	12	10	0	286	0	0	3295	0	210	23241	27758
6/90	775	10	0	0	15	837	81	0	0	3826	0	267	17735	23546
	-9.3%	-90.0%	0.0%	999.9%	-33.3%	-100.0%	253.1%	0.0%	0.0%	-13.9%	0.0%	-21.3%	31.0%	17.9%
7/91	470	3	0	11	10	0	293	0	0	3342	0	217	22292	26638
7/90	197	1	0	0	6	2187	182	0	0	3849	0	337	14776	21535
	138.6%	200.0%	0.0%	999.9%	66.7%	-100.0%	61.0%	0.0%	0.0%	-13.2%	0.0%	-35.6%	50.9%	23.7%
8/91	428	1	0	5	10	0	285	0	0	3311	0	217	20964	25221
8/90	-61	133	0	0	105	1655	196	0	0	3955	0	238	15278	21499
	801.6%	-99.2%	0.0%	999.9%	-90.5%	-100.0%	45.4%	0.0%	0.0%	-16.3%	0.0%	-8.8%	37.2%	17.3%
SUMMER TOTAL	7043	12270	0	137	131	0	1530	0	0	24811	0	5965	173411	225298
	2063	11909	0	11	590	9301	1071	10	0	28464	0	9680	143152	206251
	241.4%	3.0%	0.0%	1145.5%	-77.8%	-100.0%	42.9%	-100.0%	0.0%	-12.8%	0.0%	-38.4%	21.1%	9.2%
WINTER TOTAL	21871	54480	0	289	990	0	1398	0	0	18663	0	62472	238805	398968
	118278	51768	0	66	1325	7611	1249	1489	0	19841	0	72914	148339	422880
	-81.5%	5.2%	0.0%	337.9%	-25.3%	-100.0%	11.9%	-100.0%	0.0%	-5.9%	0.0%	-14.3%	61.0%	-5.7%
YEAR TOTAL	28914	66750	0	426	1121	0	2928	0	0	43474	0	68437	412216	624266
	120341	63677	0	77	1915	16912	2320	1499	0	48305	0	82594	291491	629131
	-76.0%	4.8%	0.0%	453.2%	-41.5%	-100.0%	26.2%	-100.0%	0.0%	-10.0%	0.0%	-17.1%	41.4%	-0.8%

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH.

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

Table 15. The Growth of Non-tariff Industrial Sales in Ohio[1] (1978 - 1989) (MMCF)

Year	Industrial Tariff[2] Sales	Industrial[2] Non-tariff Sales	Total Industrial Sales[2]	Share of Non-tariff Sales in Total[2] Industrial Requirements
1978	306,603	18,300	324,903	5.63%
1979	304,439	19,600	324,039	6.05%
1980	297,938	21,000	318,938	6.58%
1981	289,009	26,400	315,409	8.37%
1982	227,332	40,300	267,632	15.06%
1983	187,625	70,800	258,425	27.40%
1984	156,255	104,500	260,755	40.08%
1985	119,508	128,284	247,792	51.77%
1986	84,403	151,426	235,829	64.21%
1987	53,350	170,211	223,561	76.14%
1988	52,314	227,745[3]	280,059[3]	81.32%[3]
1989	44,688	233,517	278,205	83.94%

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.
Energy Information Administration's Natural Gas Annuals, 1979-1989.
Energy Information Administration's State Energy Data Report: Consumption Estimates 1960-1987.

2 Previous numbers have been revised.

3 Revised numbers.

Table 16. Independent Forecasts of Gas Supply and Demand for the Eight Major Ohio Gas Utilities[1] November 1990 - March 1991 (MMCF)

	Normal Weather			10% Colder Than Normal Weather		
	Supply	Demand	Surplus (Deficiency)[2]	Supply	Demand	Surplus (Deficiency)[2]
Cincinnati Gas & Electric	47,946	44,400	3,546	51,833	48,436	3,397
Columbia Gas	137,702	121,800	15,902	148,732	133,341	15,391
Dayton Power & Light	32,860	30,300	2,560	35,738	33,412	2,326
East Ohio Gas	170,133	146,300	23,833	181,937	158,558	23,380
National Gas	2,143	2,143	0	2,316	2,316	0
Ohio Gas	5,699	5,699	0	6,078	6,078	0
River Gas	1,826	1,826	0	1,961	1,961	0
West Ohio Gas	6,878	6,878	0	7,567	7,567	0
TOTAL	405,187	359,346	45,841	436,162	391,668	44,494

1 Source: PUCO Form SG-2 of reporting utilities and PUCO, Divison of Forecasting.

2 Numbers within parentheses indicate deficiency.

Table 17. Independent Forecasts of Gas Supply and Demand for Cincinnati Gas and Electric Company[1]
November 1990 - March 1991
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1990	7,652	461	7,800	(148)	8,058	507	8,237	(179)
December 1990	10,472	812	10,800	(328)	11,183	893	11,571	(388)
January 1991	11,824	1,074	10,100	1,724	12,799	1,181	11,119	1,680
February 1991	9,965	1,044	9,100	865	10,978	1,148	10,091	887
March 1991	8,033	862	6,600	1,433	8,815	948	7,418	1,397
TOTAL	47,946		44,400	3,546	51,833		48,436	3,397

1 Source: Cincinnati Gas & Electric Company's PUCO Form SG-2 and PUCO, Divison of Forecasting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Table 18. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio[1]
November 1990 - March 1991
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1990	19,805	436	18,800	1,005	21,101	480	20,025	1,076
December 1990	26,324	818	27,000	(676)	28,252	900	29,299	(1,047)
January 1991	35,841	1,017	31,000	4,841	38,662	1,119	33,858	4,804
February 1991	30,716	1,025	28,000	2,716	33,465	1,128	30,880	2,585
March 1991	25,016	811	17,000	8,016	27,252	892	19,279	7,973
TOTAL	137,702		121,800	15,902	148,732		133,341	15,391

1 Source: Columbia Gas of Ohio's PUCO Form SG-2 and PUCO, Divison of Forecasting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Table 19. Independent Forecasts of Gas Supply and Demand for Dayton Power & Light Company[1]
November 1990 - March 1991
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1990	3,177	478	4,800	(1,623)	3,593	526	5,125	(1,532)
December 1990	6,576	828	6,900	(324)	7,107	911	7,463	(356)
January 1991	8,341	1,179	7,900	441	9,049	1,297	8,702	347
February 1991	8,220	1,138	6,100	2,120	8,915	1,252	6,874	2,041
March 1991	6,546	953	4,600	1,946	7,074	1,048	5,248	1,826
TOTAL	32,860		30,300	2,560	35,738		33,412	2,326

1 Source: Dayton Power & Light's PUCO Form SG-2 and PUCO, Divison of Forecasting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Table 20. Independent Forecasts of Gas Supply and Demand for East Ohio Gas Company[1]
November 1990 - March 1991
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]	Supply	HDD[2]	Demand	Surplus (Deficiency)[3]
November 1990	28,491	585	25,300	3,191	29,755	644	26,763	2,993
December 1990	34,110	968	33,000	1,110	36,382	1,065	35,420	962
January 1991	41,541	1,251	36,300	5,241	44,751	1,376	39,428	5,324
February 1991	36,367	1,164	31,000	5,367	39,194	1,280	33,910	5,284
March 1991	29,624	935	20,700	8,924	31,855	1,029	23,038	8,818
TOTAL	170,133		146,300	23,833	181,937		158,558	23,380

1 Source: Cincinnati Gas & Electric Company's PUCO Form SG-2 and PUCO, Divison of Forecasting.

2 Heating Degree Days.

3 Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

APPENDIX A

Table A-1: Allegheny Power System[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	3,148	3,166	0.57	3,200	1.65
December	3,820	3,626	-5.08	3,550	-7.07
January	3,497	3,758	7.46	3,570	2.09
February	3,104	3,432	10.57	3,100	-0.13
March	3,306	3,449	4.33	3,240	-2.00
April	3,050	3,108	1.90	3,010	-1.31
May	2,977	3,063	2.89	3,050	2.45
June	3,041	3,088	1.55	3,060	0.62
July	3,230	3,258	0.87	3,250	0.62
August	3,225	3,253	0.87	3,280	1.71
September	*[2]	2,995	*[2]	2,930	*[2]
October	*[2]	3,158	*[2]	3,070	*[2]

1 Source: Form EIA-119M and PUCO, Division of Forecasting.

2 * = Actual figures not available.

Table A-2: American Electric Power[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	8,123	8,112	-0.14	8,270	1.81
December	9,799	9,091	-7.23	9,290	-5.19
January	8,892	9,939	11.77	8,900	0.09
February	7,844	8,839	12.68	8,150	3.90
March	8,293	8,861	6.85	8,390	1.17
April	7,719	7,979	3.37	7,600	-1.54
May	7,570	8,040	6.21	7,770	2.64
June	7,858	8,311	5.76	7,940	1.04
July	8,292	9,018	8.76	8,500	2.51
August	8,535	8,890	4.16	8,700	1.93
September	*[2]	7,907	*[2]	7,580	*[2]
October	*[2]	8,247	*[2]	7,700	*[2]

1 Source: Form EIA-119M and PUCO, Division of Forecasting.

2 * = Actual figures not available.

Table A-3: Cincinnati Gas and Electric[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	1,560	1,618	3.72	1,550	-0.64
December	1,953	1,825	-6.55	1,820	-6.81
January	1,728	1,962	13.54	1,740	0.69
February	1,536	1,748	13.80	1,590	3.52
March	1,595	1,758	10.22	1,620	1.57
April	1,491	1,520	1.95	1,470	-1.41
May	1,480	1,604	8.38	1,480	0.00
June	1,695	1,760	3.83	1,790	5.60
July	1,904	1,970	3.47	2,070	8.72
August	1,873	1,950	4.11	2,000	6.78
September	*[2]	1,646	*[2]	1,720	*[2]
October	*[2]	1,601	*[2]	1,740	*[2]

1 Source: Form EIA-119M and PUCO, Division of Forecasting.

2 * = Actual figures not available.

Table A-4: Cleveland Electric Illuminating Company[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	1,681	1,643	-2.26	1,670	-0.65
December	1,873	1,722	-8.06	1,830	-2.30
January	1,798	1,904	5.90	1,850	2.89
February	1,647	1,724	4.68	1,600	-2.85
March	1,789	1,823	1.90	1,830	2.29
April	1,671	1,666	-0.30	1,720	2.93
May	1,677	1,714	2.21	1,680	0.18
June	1,747	1,742	-0.29	1,710	-2.12
July	1,812	1,856	2.43	1,830	0.99
August	1,858	1,819	-2.10	1,890	1.72
September	*[2]	1,681	*[2]	1,710	*[2]
October	*[2]	1,713	*[2]	1,730	*[2]

1 Source: Form EIA-119M and PUCO, Division of Forecasting.

2 * = Actual figures not available.

Table A-5: Dayton Power and Light[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	1,097	1,088	-0.82	1,120	2.10
December	1,325	1,161	-12.38	1,270	-4.15
January	1,208	1,326	9.77	1,250	3.48
February	1,081	1,160	7.31	1,170	8.23
March	1,123	1,189	5.88	1,160	3.29
April	1,039	1,042	0.29	1,000	-3.75
May	1,023	1,043	1.96	1,050	2.64
June	1,118	1,105	-1.16	1,080	-3.40
July	1,211	1,236	2.06	1,300	7.35
August	1,215	1,206	-0.74	1,180	-2.88
September	*[2]	1,074	*[2]	1,020	*[2]
October	*[2]	1,076	*[2]	1,040	*[2]

1 Source: Form EIA-119M and PUCO, Division of Forecasting.

2 * = Actual figures not available.

Table A-6: Ohio Edison Company[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	2,502	2,511	0.36	2,360	-5.68
December	2,875	2,757	-4.10	2,540	-11.65
January	2,688	2,834	5.43	2,730	1.56
February	2,424	2,534	4.54	2,500	3.14
March	2,658	2,687	1.09	2,650	-0.30
April	2,440	2,472	1.31	2,420	-0.82
May	2,411	2,463	2.16	2,400	-0.46
June	2,544	2,556	0.47	2,500	-1.73
July	2,694	2,733	1.45	2,700	0.22
August	2,736	2,698	-1.39	2,800	2.34
September	*[2]	2,449	*[2]	2,300	*[2]
October	*[2]	2,528	*[2]	2,570	*[2]

1 Source: Form EIA-119M and PUCO, Division of Forecasting.

2 * = Actual figures not available.

Table A-7: Ohio Valley Electric Corporation[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	System Net Generation (1989-1990)	Utility Forecast[2] (1990-1991)	%Change Utility Forecast vs Actual
November	1,473	1,517	2.99
December	1,484	1,561	5.19
January	1,335	1,529	14.53
February	1,222	1,349	10.39
March	1,386	1,485	7.14
April	1,383	1,582	14.39
May	1,440	1,572	9.17
June	1,373	1,488	8.38
July	*[3]	1,591	*[3]
August	*[3]	1,555	*[3]
September	*[3]	1,368	*[3]
October	*[3]	1,438	*[3]

1 Source: Form SE-1 and PUCO, Division of Forecasting.

2 Reflects Total Expected Net Generation.

3 * = Actual figures not available.

Table A-8: Toledo Edison Company[1]
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	702	681	-2.99	700	-0.28
December	767	752	-1.96	760	-0.91
January	723	776	7.33	740	2.35
February	660	711	7.73	680	3.03
March	716	734	2.51	720	0.56
April	656	662	0.91	650	-0.91
May	674	676	0.30	660	-2.08
June	709	709	0.00	690	-2.68
July	722	759	5.12	700	-3.05
August	744	769	3.36	720	-3.23
September	*[2]	686	*[2]	660	*[2]
October	*[2]	692	*[2]	710	*[2]

1 Source: Form SE-1 and PUCO, Division of Forecasting.

2 * = Actual figures not available.

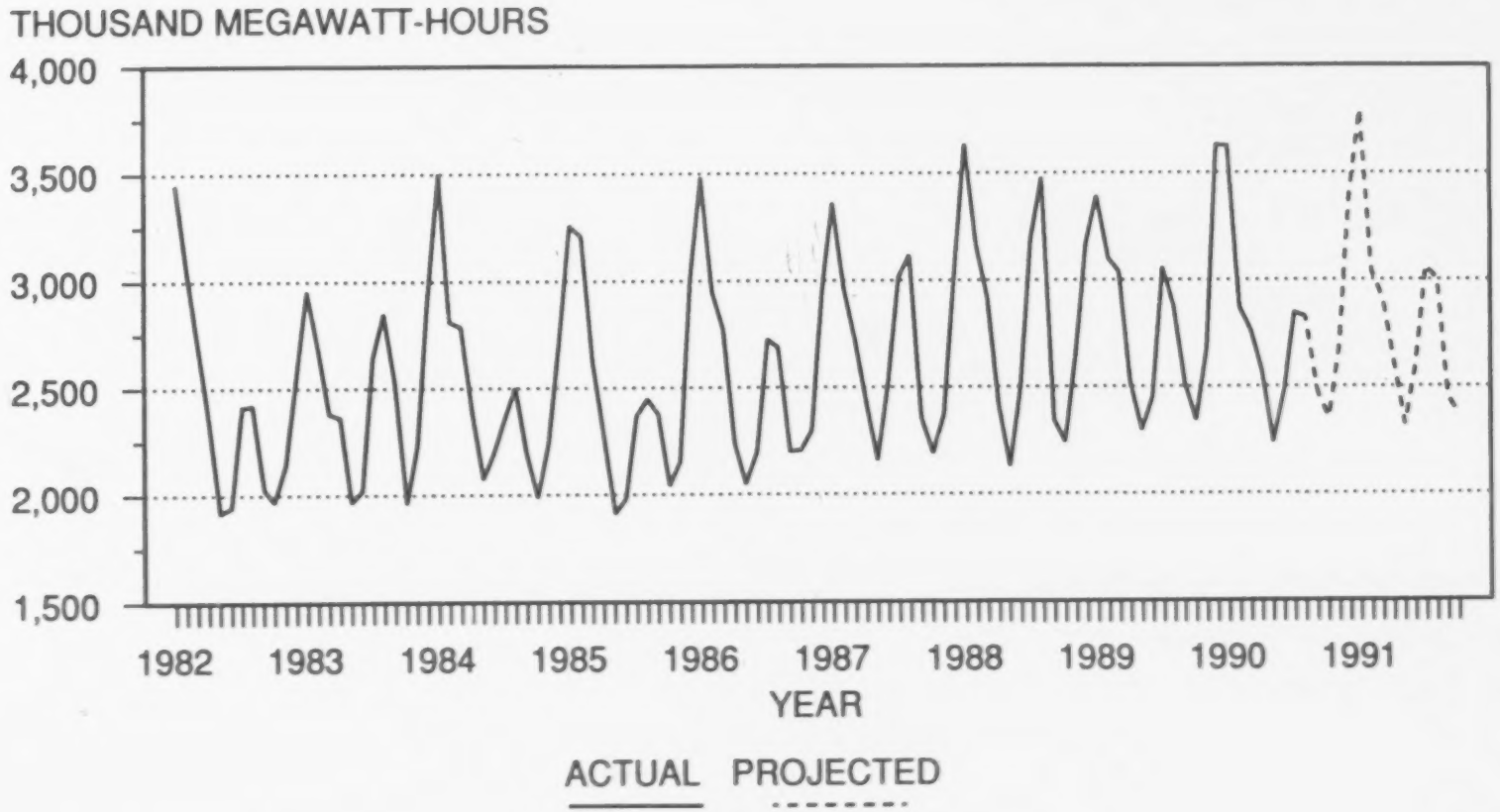
Table A-9: Independent Forecast of Ohio Electricity Demand[1]
Residential Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	PUCO Forecast (1990-91)	Upper 95% Confidence Limit	Actual (1989-90)	Forecast Percentage Change
November	2,470	2,680	2,890	2,673	0.3
December	3,160	3,400	3,640	3,628	-6.3
January	3,490	3,790	4,090	3,623	4.6
February	2,890	3,040	3,190	2,869	6.0
March	2,740	2,910	3,080	2,860	1.7
April	2,480	2,620	2,760	2,572	1.9
May	2,160	2,320	2,480	2,239	3.6
June	2,380	2,590	2,800	2,489	4.1
July	2,780	3,060	3,340	2,845	7.6
August	2,760	3,000	3,240	2,827	6.1
September	2,290	2,450	2,610	*[2]	*[2]
October	2,210	2,360	2,510	*[2]	*[2]

1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area).

2 * = Actual figures not available.

FIGURE A-1. OHIO RESIDENTIAL ELECTRICITY REQUIREMENTS[1,2] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting.

2 Does not include Buckeye Power.

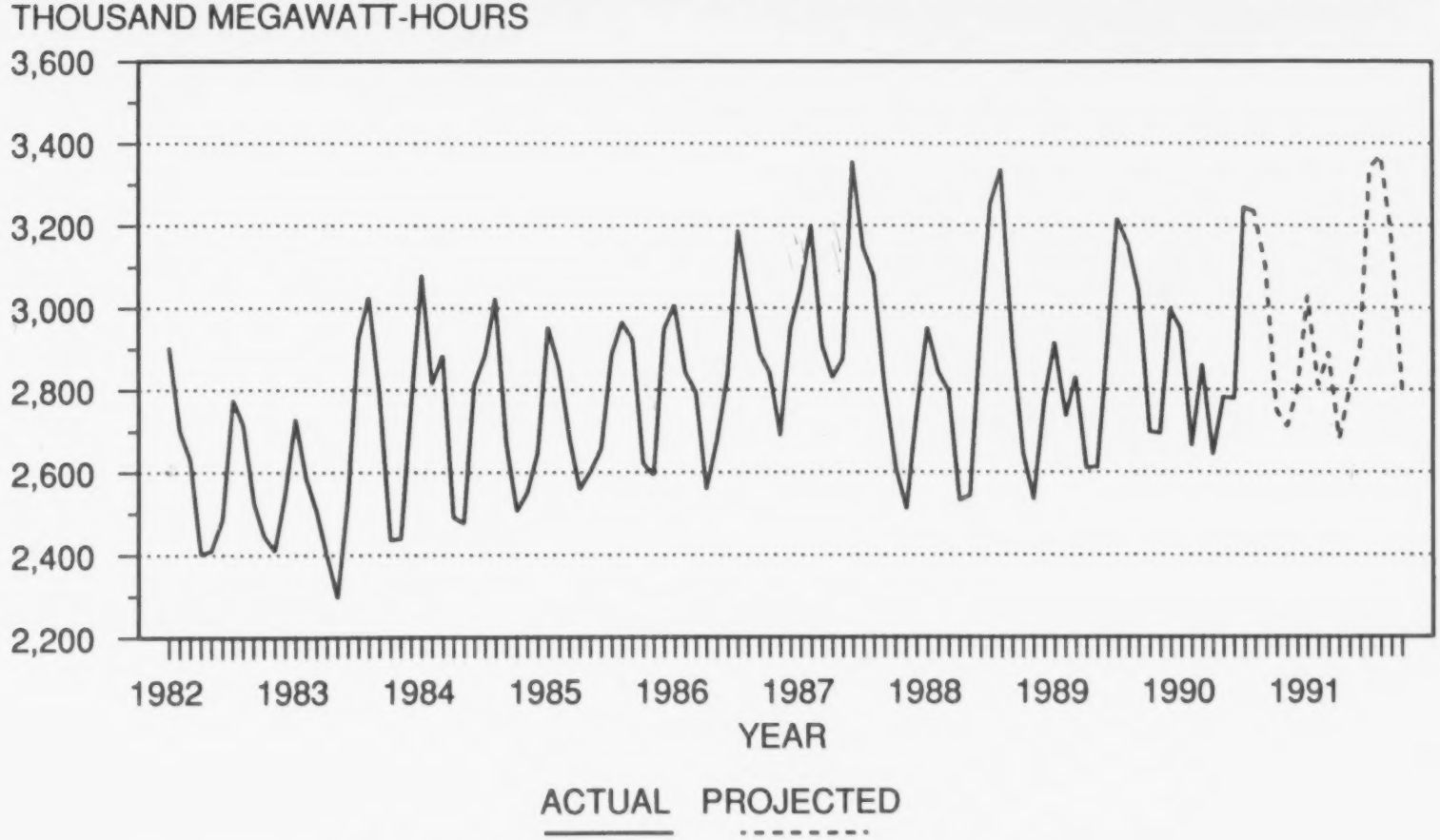
Table A-10: Independent Forecast of Ohio Electricity Demand[1]
Commercial Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	PUCO Forecast (1990-91)	Upper 95% Confidence Limit	Actual (1989-90)	Forecast Percentage Change
November	2,560	2,710	2,860	2,694	0.6
December	2,650	2,800	2,950	2,995	-6.5
January	2,820	3,030	3,240	2,949	2.7
February	2,680	2,810	2,940	2,664	5.5
March	2,750	2,890	3,030	2,760	4.7
April	2,530	2,680	2,830	2,642	1.4
May	2,620	2,800	2,980	2,782	0.6
June	2,740	2,900	3,060	2,778	4.4
July	3,160	3,340	3,520	3,245	2.9
August	3,150	3,370	3,590	3,235	4.2
September	2,970	3,180	3,390	*[2]	*[2]
October	2,660	2,790	2,920	*[2]	*[2]

1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area).

2 * = Actual figures not available.

FIGURE A-2. OHIO COMMERCIAL ELECTRICITY REQUIREMENTS[1,2] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting.

2 Does not include Buckeye Power.

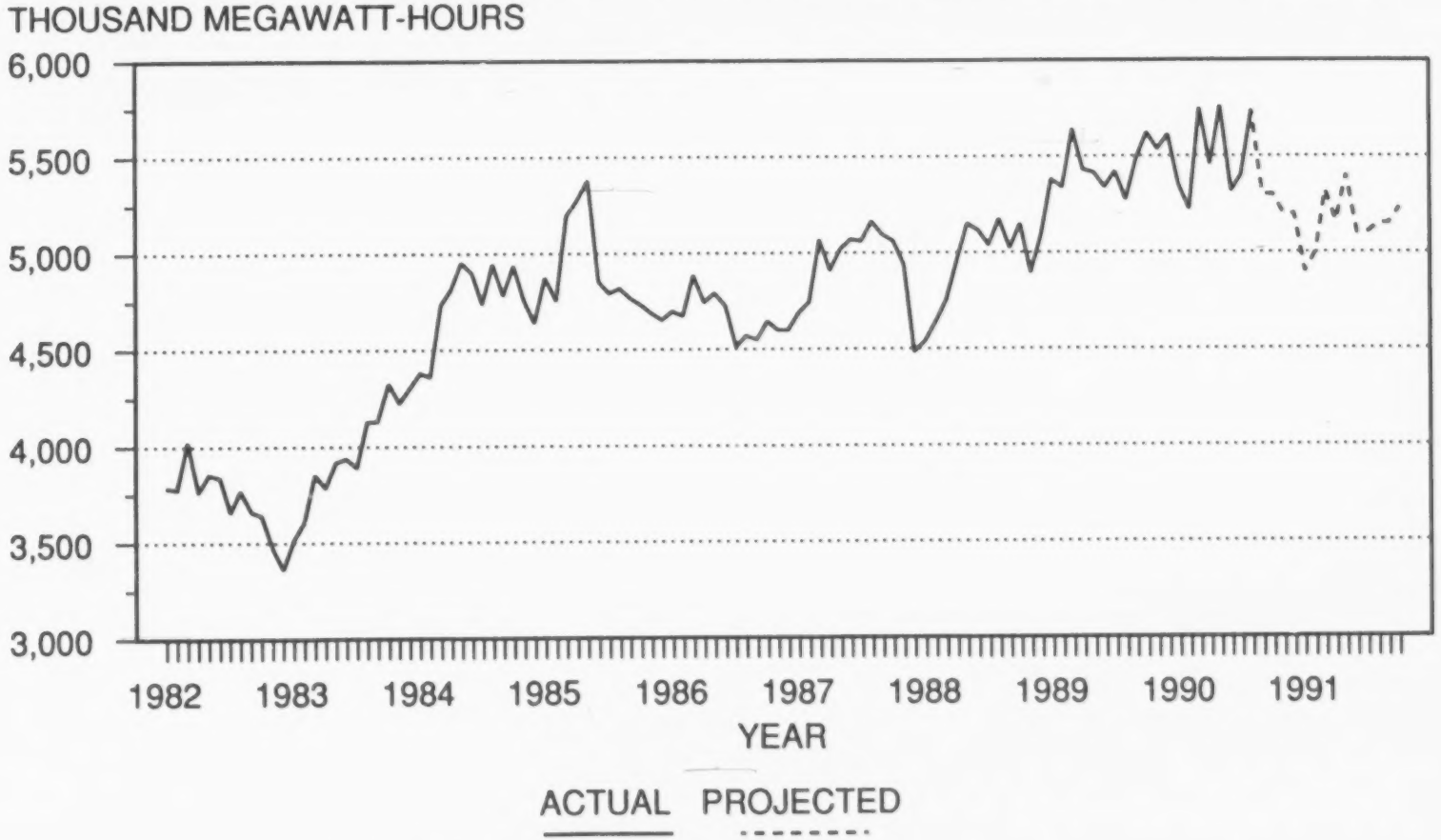
Table A-11: Independent Forecast of Ohio Electricity Demand[1]
Industrial Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	PUCO Forecast (1990-91)	Upper 95% Confidence Limit	Actual (1989-90)	Forecast Percentage Change
November	4,810	5,200	5,590	5,533	-6.0
December	4,810	5,200	5,590	5,609	-7.3
January	4,530	4,900	5,270	5,349	-8.4
February	4,690	5,000	5,310	5,222	-4.3
March	4,960	5,320	5,680	5,746	-7.4
April	4,840	5,160	5,480	5,456	-5.4
May	5,030	5,400	5,770	5,755	-6.2
June	4,770	5,100	5,430	5,317	-4.1
July	4,740	5,100	5,460	5,399	-5.5
August	4,790	5,150	5,510	5,736	-10.2
September	4,790	5,150	5,510	*[2]	*[2]
October	4,860	5,230	5,600	*[2]	*[2]

1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area).

2 * = Actual figures not available.

FIGURE A-3. OHIO INDUSTRIAL ELECTRICITY REQUIREMENTS [1,2] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting.

2 Does not include Buckeye Power.

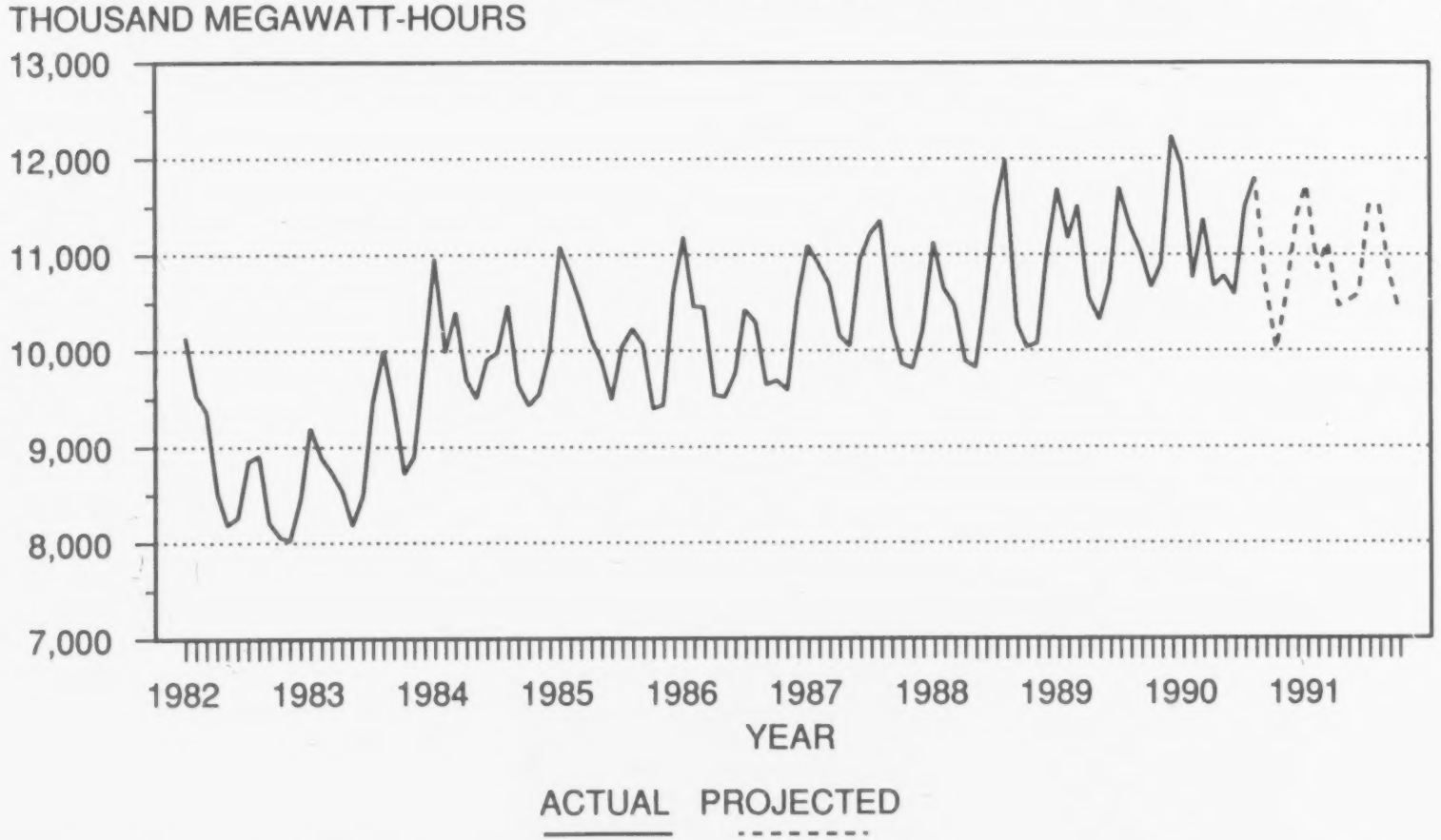
Table A-12: Independent Forecast of Ohio Electricity Demand[1]
All Sectors
(1000 MWH)

Month	Lower 95% Confidence Limit	PUCO Forecast (1990-91)	Upper 95% Confidence Limit	Actual (1989-90)	Forecast Percentage Change
November	9,850	10,590	11,330	10,900	-2.8
December	10,600	11,400	12,200	12,232	-6.8
January	11,130	11,720	12,310	11,921	-1.7
February	10,090	10,850	11,610	10,755	0.9
March	10,450	11,120	11,790	11,366	-2.2
April	9,830	10,460	11,090	10,670	-2.0
May	9,890	10,520	11,150	10,776	-2.4
June	9,950	10,590	11,230	10,584	0.1
July	10,810	11,500	12,190	11,489	0.1
August	10,770	11,520	12,270	11,798	-2.4
September	10,080	10,780	11,480	*[2]	*[2]
October	9,710	10,380	11,050	*[2]	*[2]

1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area).

2 * = Actual figures not available.

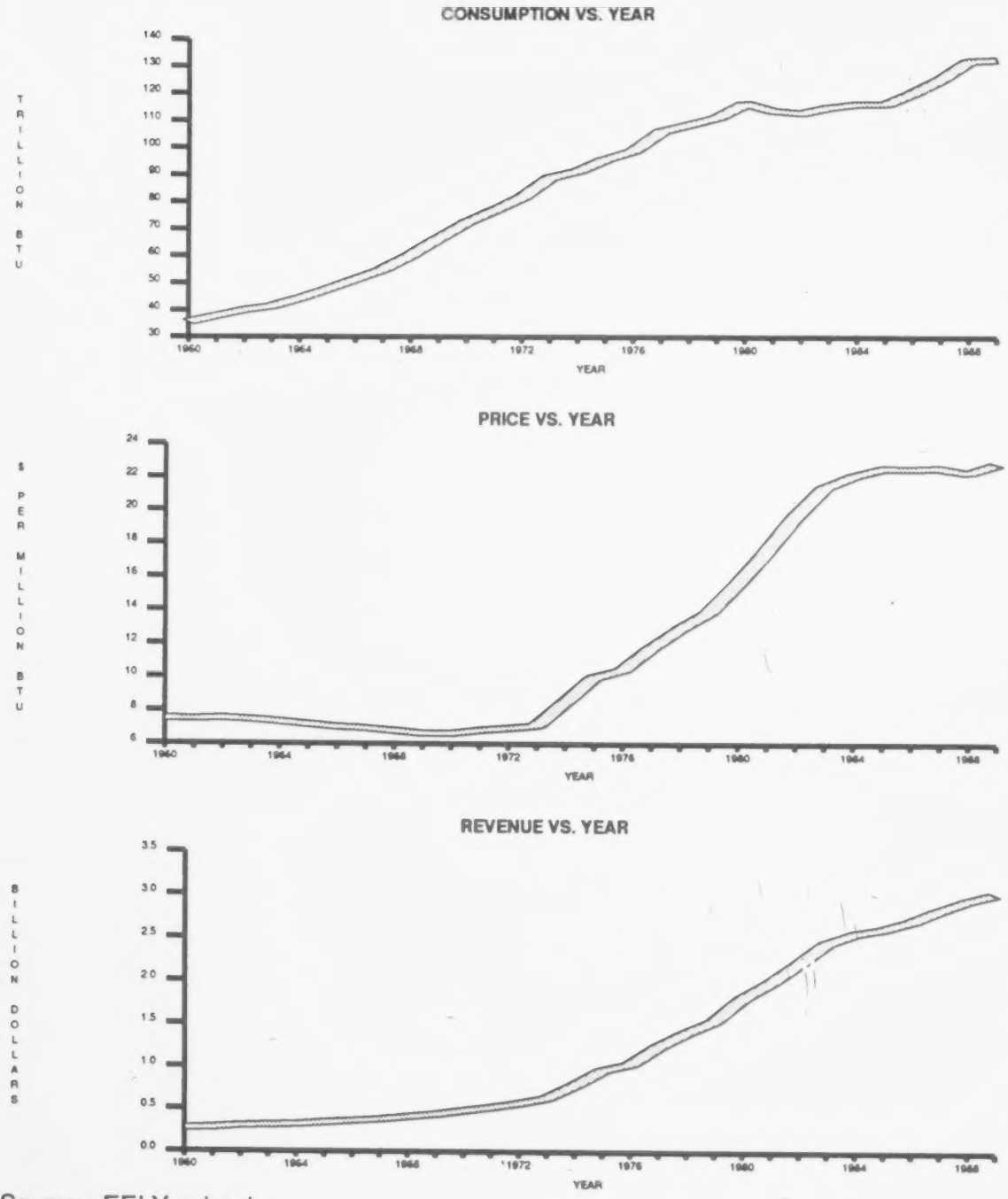
FIGURE A-4. OHIO TOTAL ELECTRICITY REQUIREMENTS [1,2] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: PUCO Form SE-1 and PUCO, Division of Forecasting.

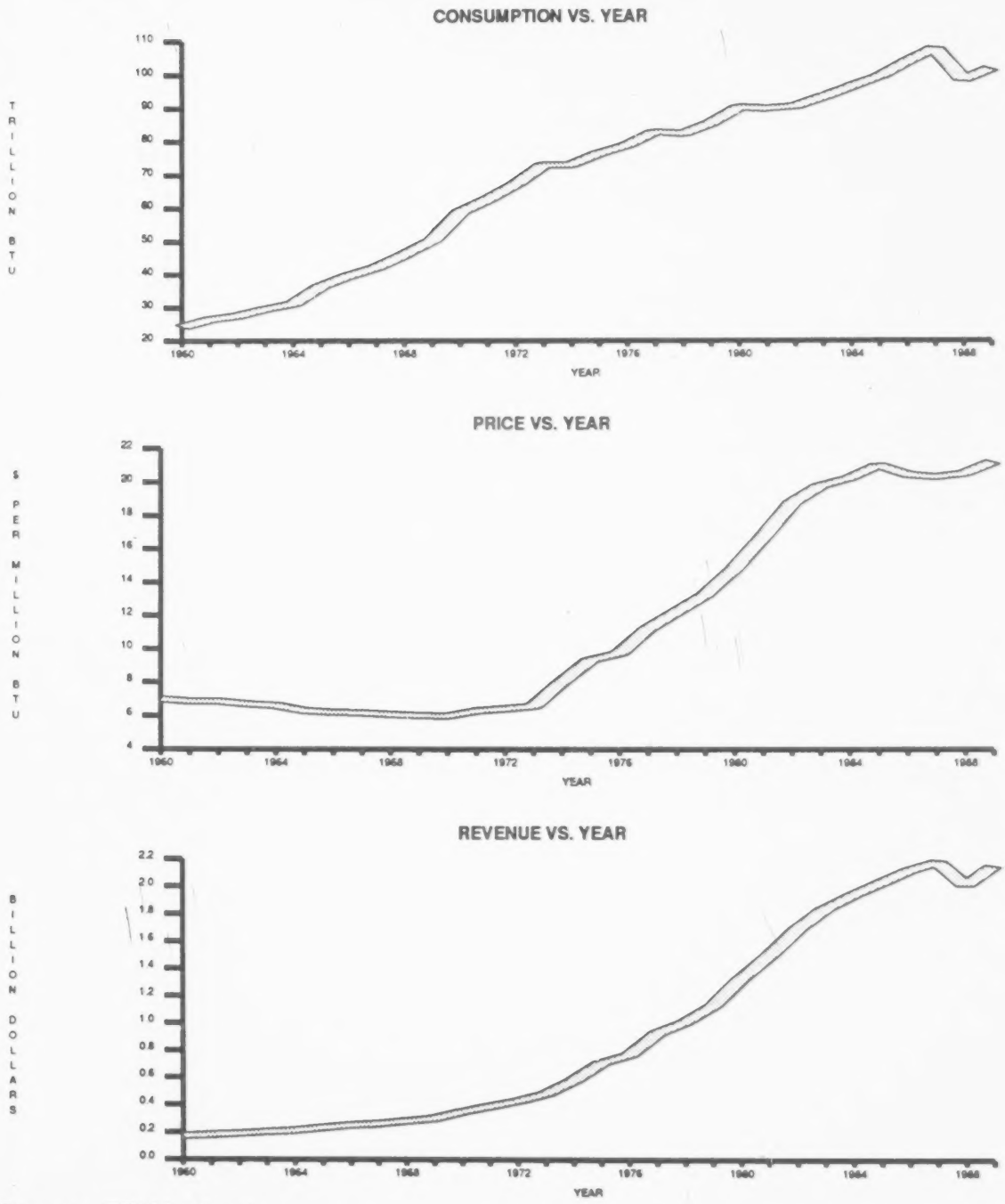
2 Does not include Buckeye Power.

FIGURE A-5. ANNUAL OHIO ELECTRIC CONSUMPTION, PRICE AND REVENUE: RESIDENTIAL SECTOR (1960-1989)



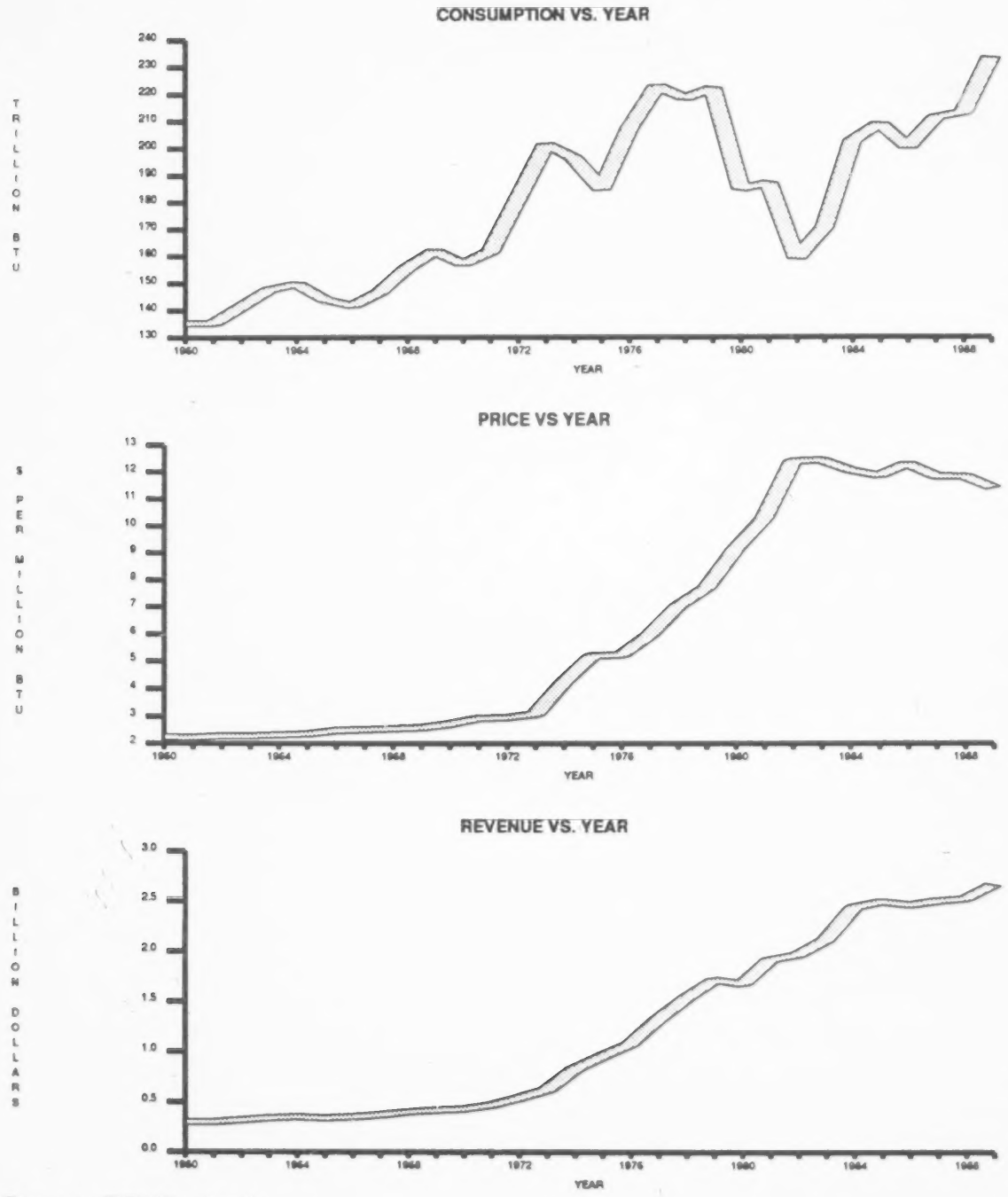
Source: EEI Yearbook.

FIGURE A-6. ANNUAL OHIO ELECTRIC CONSUMPTION, PRICE AND REVENUE: COMMERCIAL SECTOR (1960-1989)



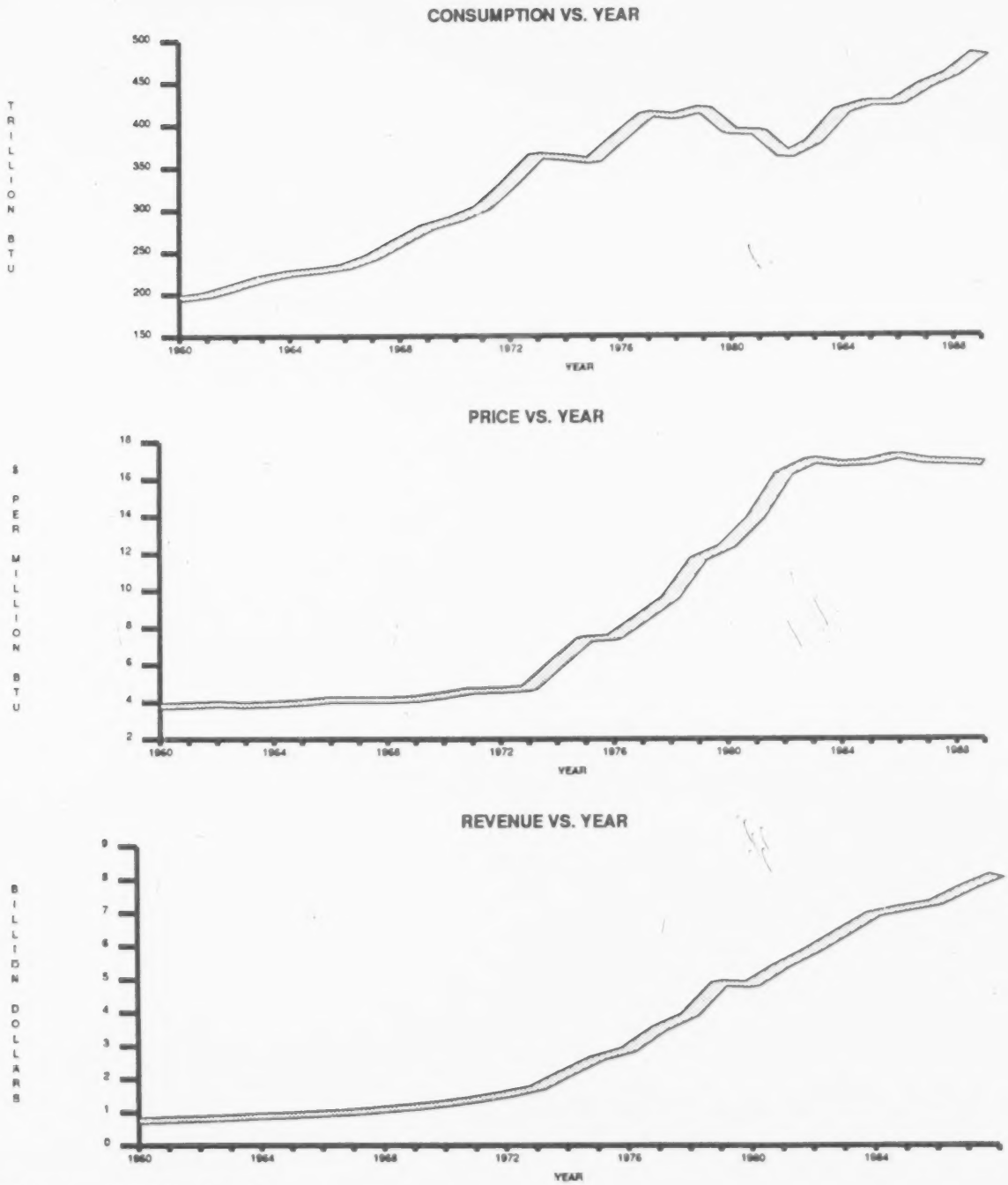
Source: EEI Yearbook.

FIGURE A-7. ANNUAL OHIO ELECTRIC CONSUMPTION, PRICE AND REVENUE: INDUSTRIAL SECTOR (1960-1989)



Source: EEI Yearbook.

FIGURE A-8. ANNUAL OHIO ELECTRIC CONSUMPTION, PRICE AND REVENUE: TOTAL OF ALL SECTORS (1960-1989)



Source: EEI Yearbook.

APPENDIX B

Table B-1. Cincinnati Gas and Electric
Forecast of Natural Gas Requirements[1]
(MMCF)

Month	Actual Demand (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	7,648	7,652	0.05	7,500	-1.94
December	13,322[2]	10,472	-21.39	10,800	-18.93
January	10,669	11,824	10.83	11,200	4.98
February	8,329	9,965	19.64	9,100	9.26
March	6,753	8,033	18.95	6,600	-2.27
April	4,690	4,805	2.45	4,400	-6.18
May	2,911	2,559	-12.09	3,100	6.49
June	2,242	1,587	-29.21	2,130	-5.00
July	1,914	1,689	-11.76	1,800	-5.96
August	1,934	1,654	-14.48	1,880	-2.79
September	*[3]	1,743	*[3]	2,450	*[3]
October	*[3]	3,883	*[3]	4,300	*[3]

---

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

2 December 1989 was one of the coldest Decembers recorded in Ohio.

3 * = Actual figures not available.

Table B-2. Columbia Gas of Ohio
Forecast of Natural Gas Requirements[1]
(MMCF)

Month	Actual Demand (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	54,453[2]	19,805	-63.63	18,800	-65.47
December	39,938[3]	26,324	-34.09	29,700	-25.63
January	27,912	35,841	28.41	31,000	11.06
February	25,994	30,716	18.17	28,000	7.72
March	19,187	25,016	30.38	17,000	-11.40
April	13,298	14,615	9.90	13,000	-2.24
May	8,045	11,383[4]	41.49	7,500	-6.77
June	4,480	9,431[4]	110.51	4,450	-0.67
July	4,677	9,801[4]	109.56	4,300	-8.06
August	5,116	9,341[4]	82.58	4,000	-21.81
September	*[5]	7,114[6]	*[5]	4,400	*[5]
October	*[5]	9,710	*[5]	14,400	*[5]

---

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

2 Includes 32,499 MMCF of storage.

3 December 1989 was one of the coldest Decembers recorded in Ohio.

4 Includes between 5,300 and 5,500 MMCF of storage.

5 * = Actual figures not available.

6 Includes 2,670 MMCF of storage.

Table B-3. Dayton Power and Light
Forecast of Natural Gas Requirements[1]
(MMCF)

Month	Actual Demand (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	5,608	3,177	-43.35	4,800	-14.41
December	9,443[2]	6,576	-30.36	6,900	-26.93
January	6,941	8,341	20.17	7,900	13.82
February	5,966	8,220	37.78	6,100	2.25
March	4,815	6,546	35.95	4,600	-4.47
April	3,232	4,851[3]	50.09	3,100	-4.08
May	2,173	4,960[3]	128.26	2,000	-7.96
June	2,295	3,670	59.91	1,300	-43.36
July	1,277	1,282	0.39	1,000	-21.69
August	1,267	1,199	-5.37	1,250	-1.34
September	*[4]	1,378	*[4]	1,220	*[4]
October	*[2]	2,079	*[4]	3,400	*[4]

---

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

2 December 1989 was one of the coldest Decembers recorded in Ohio.

3 Includes approximately 2,100 MMCF of storage.

4 * = Actual figures not available.

Table B-4. East Ohio Gas
Forecast of Natural Gas Requirements[1]
(MMCF)

Month	Actual Demand (1989-1990)	Utility Forecast (1990-1991)	%Change Utility Forecast vs Actual	PUCO Forecast (1990-1991)	%Change PUCO Forecast vs Actual
November	28,447	28,491	0.15	25,300	-11.06
December	44,039[2]	34,110	-22.55	33,000	-25.07
January	33,214	41,541	25.07	36,300	9.29
February	27,779	36,367	30.92	31,000	11.60
March	23,856	29,626	24.19	20,700	-13.23
April	17,781	18,926	6.44	16,600	-6.64
May	16,238	19,104	17.65	15,400	-5.16
June	13,134	13,531	3.02	12,900	-1.78
July	11,969	12,383	3.46	11,400	-4.75
August	11,873	11,421	-3.81	11,200	-5.67
September	*[3]	13,147	*[3]	14,155	*[3]
October	*[3]	21,635	*[3]	24,600	*[3]

1 Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

2 December 1989 was one of the coldest Decembers recorded in Ohio.

3 * = Actual figures not available.

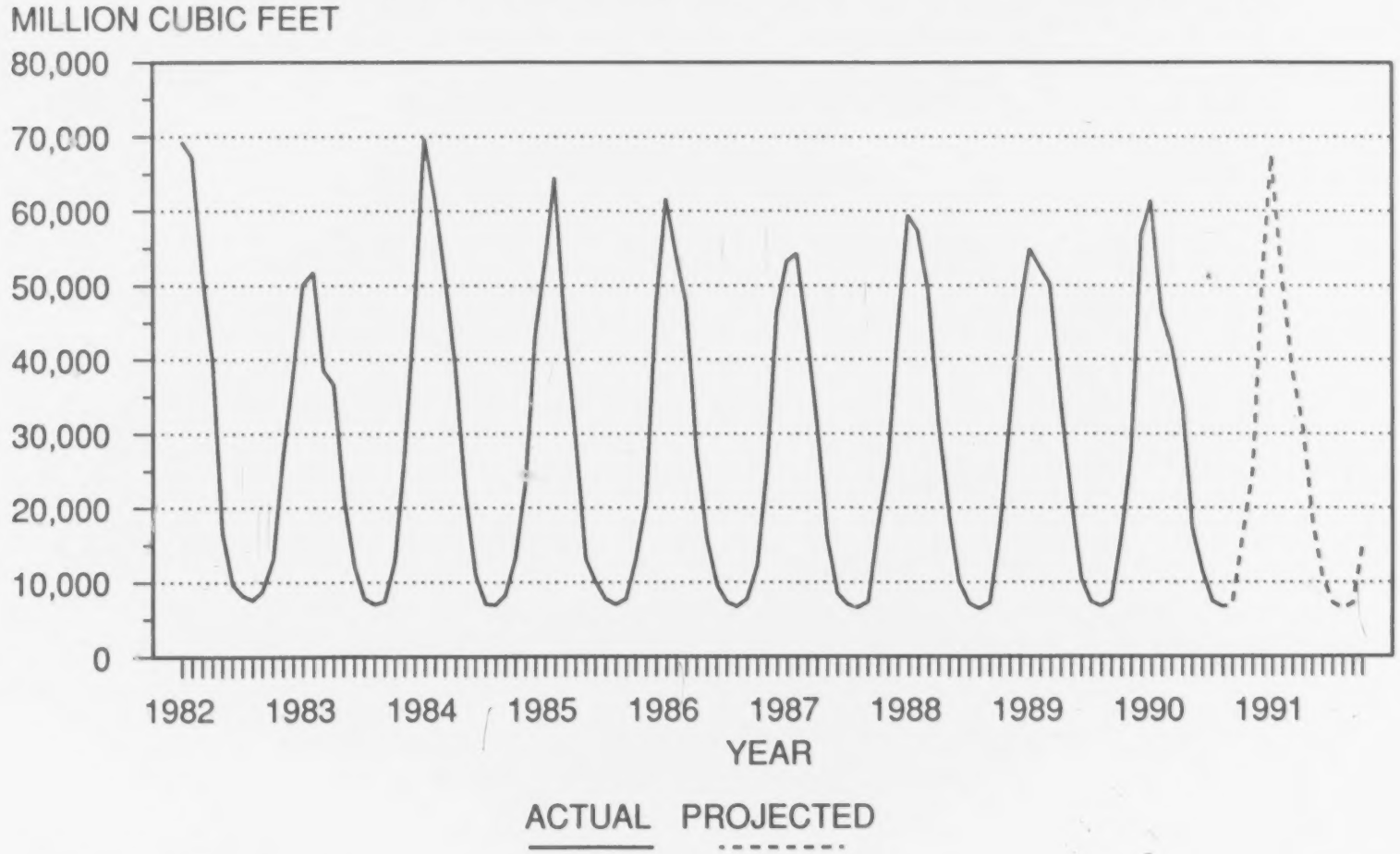
Table B-5. Independent Forecast of Ohio Natural Gas End User Requirements: Residential Sector[1] (MMCF)

Month	Lower 95% Confidence Limit	PUCO Forecast (1990-91)	Upper 95% Confidence Limit	Actual (1989-90)	Forecast Percentage Change
November	22,500	25,000	27,500	27,712	-9.8
December	46,000	51,100	56,200	56,839	-10.1
January	60,800	67,500	74,300	61,406	9.9
February	45,900	51,000	56,100	46,358	10.0
March	34,700	38,500	42,400	41,638	-7.5
April	27,900	31,000	34,100	33,934	-8.6
May	16,200	18,000	19,800	17,270	4.2
June	9,500	10,600	11,700	11,305	-6.2
July	6,300	7,200	7,800	7,445	-3.3
August	5,600	6,400	6,900	6,719	-4.7
September	6,400	7,100	7,700	*[2]	*[2]
October	13,800	15,500	16,800	*[2]	*[2]

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

2 * = Actual figures not available.

FIGURE B-1. MONTHLY OHIO RESIDENTIAL NATURAL GAS CONSUMPTION[1] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: Monthly Gas Report.

Table B-6. Independent Forecast of Ohio Natural Gas End User Requirements: Commercial Sector[1] (MMCF)

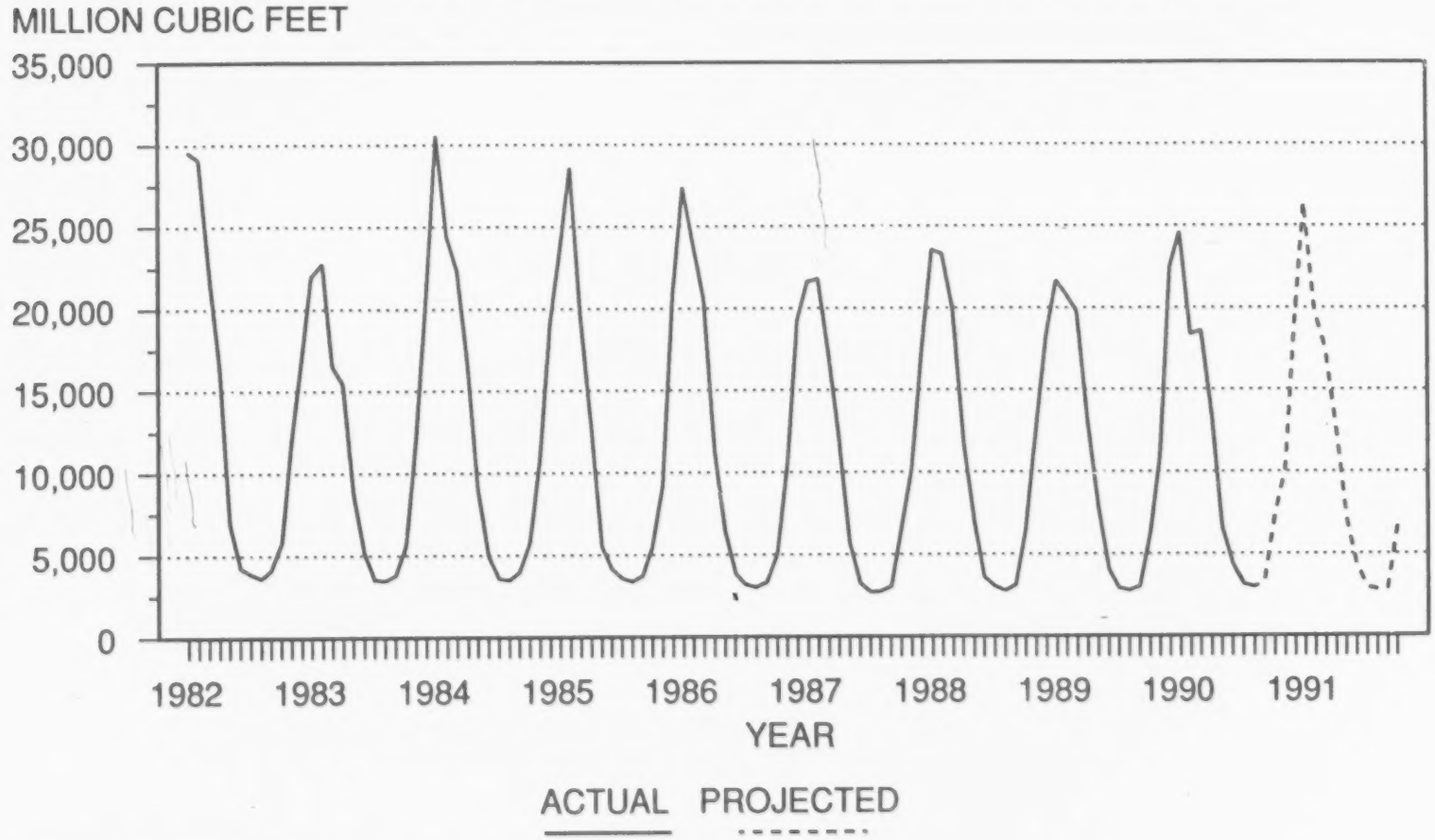
Month	Lower 95% Confidence Limit	PUCO Forecast[2] (1990-91)	Upper 95% Confidence Limit	Actual[2] (1989-90)	Forecast Percentage Change
November	9,100	10,100	11,100	10,886	-7.2
December	17,100	19,000	20,900	22,439	-15.3
January	23,800	26,400	29,000	24,635	7.2
February	17,800	19,800	21,800	18,401	7.6
March	15,800	17,500	19,300	18,599	-5.9
April	11,400	12,700	14,000	13,383	-5.1
May	6,300	7,000	7,700	6,590	6.2
June	3,900	4,300	4,700	4,378	-1.8
July	2,600	2,920	3,300	3,133	-6.8
August	2,400	2,780	3,100	2,942	-5.5
September	2,600	2,850	3,000	*[3]	*[3]
October	6,100	6,800	7,400	*[3]	*[3]

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

2 Forecast and Actual data do not include non-tariff or transportation gas.

3 * = Actual figures not available.

FIGURE B-2. MONTHLY OHIO COMMERCIAL NATURAL GAS CONSUMPTION[1] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: Monthly Gas Report.

Note: Forecast and Actual do not include non-tariff or transportation gas.

Table B-7. Independent Forecast of Ohio Natural Gas End User Requirements: Industrial Sector[1] (MMCF)

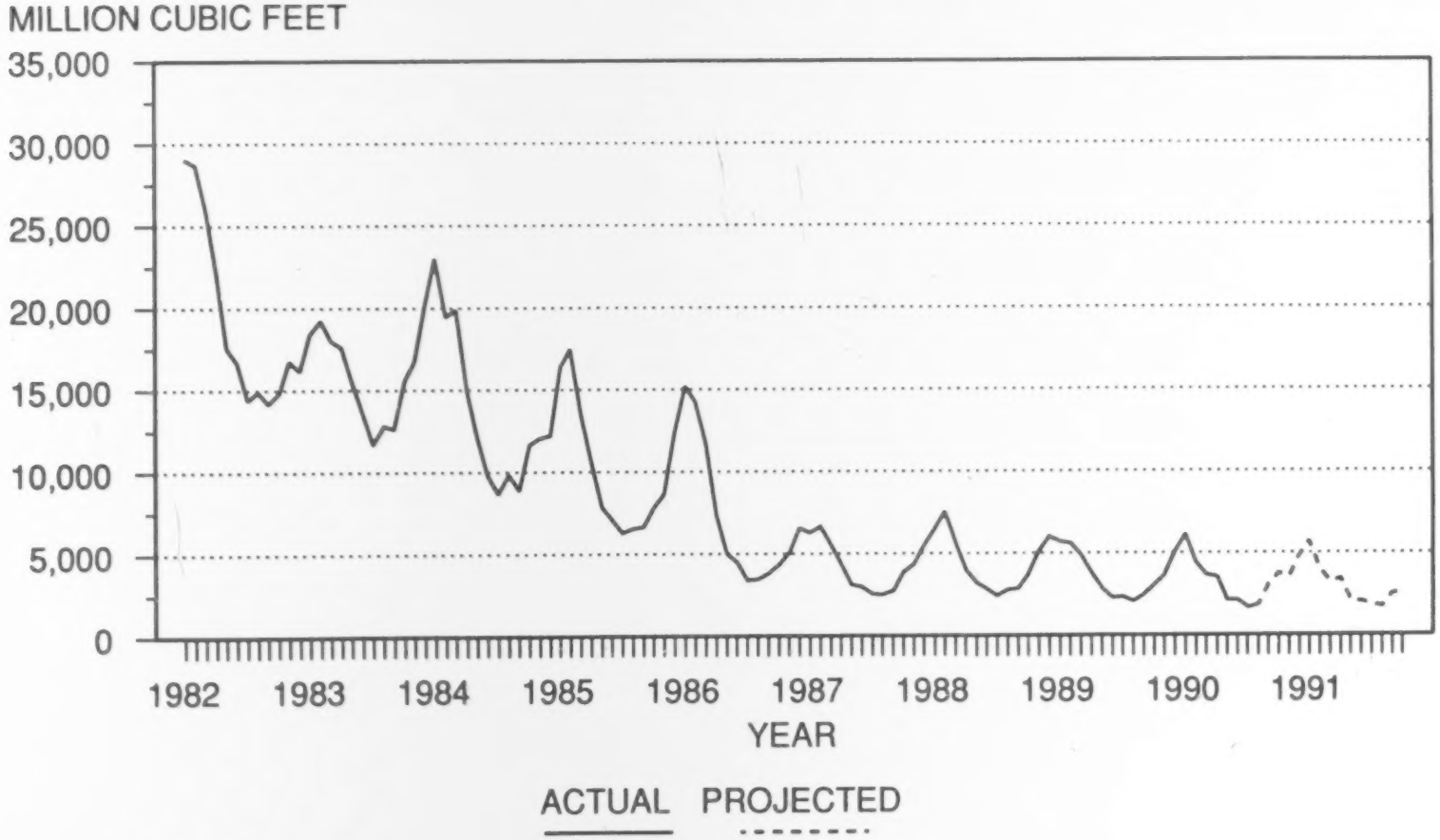
Month	Lower 95% Confidence Limit	PUCO Forecast[2] (1990-91)	Upper 95% Confidence Limit	Actual[2] (1989-90)	Forecast Percentage Change
November	3,150	3,500	3,850	3,600	-2.8
December	4,320	4,800	5,280	5,084	-5.6
January	5,130	5,700	6,270	6,080	-6.3
February	3,600	4,000	4,400	4,367	-8.4
March	2,880	3,200	3,520	3,618	-11.6
April	3,060	3,400	3,740	3,529	-3.7
May	1,800	2,000	2,200	2,122	-5.7
June	1,800	2,000	2,200	2,100	-4.8
July	1,665	1,850	2,035	1,665	11.1
August	1,530	1,700	1,870	1,809	-6.0
September	2,250	2,500	2,750	*[3]	*[3]
October	2,340	2,600	2,860	*[3]	*[3]

1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

2 Forecast and Actual data do not include non-tariff or transportation gas.

3 * = Actual figures not available.

FIGURE B-3. MONTHLY OHIO INDUSTRIAL NATURAL GAS CONSUMPTION[1] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: Monthly Gas Report.

Note: Forecast and Actual do not include non-tariff or transportation gas.

Table B-8. Independent Forecast of Ohio Natural Gas End User Requirements: All Sectors[1] (MMCF)

Month	Lower 95% Confidence Limit	PUCO Forecast[2] (1990-91)	Upper 95% Confidence Limit	Actual[2] (1989-90)	Forecast Percentage Change
November	54,000	60,000	66,000	98,333[3]	-39.0
December	81,500	90,500	99,600	110,888	-18.4
January	80,800	89,800	98,800	82,275	9.1
February	69,600	77,300	85,000	70,940	9.0
March	48,600	54,000	59,400	57,060	-5.4
April	34,700	38,500	42,400	40,796	-5.6
May	27,900	31,000	34,100	30,198	2.7
June	20,700	23,000	25,300	22,760	1.1
July	17,500	19,400	21,300	20,581	-5.7
August	17,600	19,600	21,600	20,832	-5.9
September	19,200	21,000	22,800	*[4]	*[4]
October	43,100	47,000	50,900	*[4]	*[4]

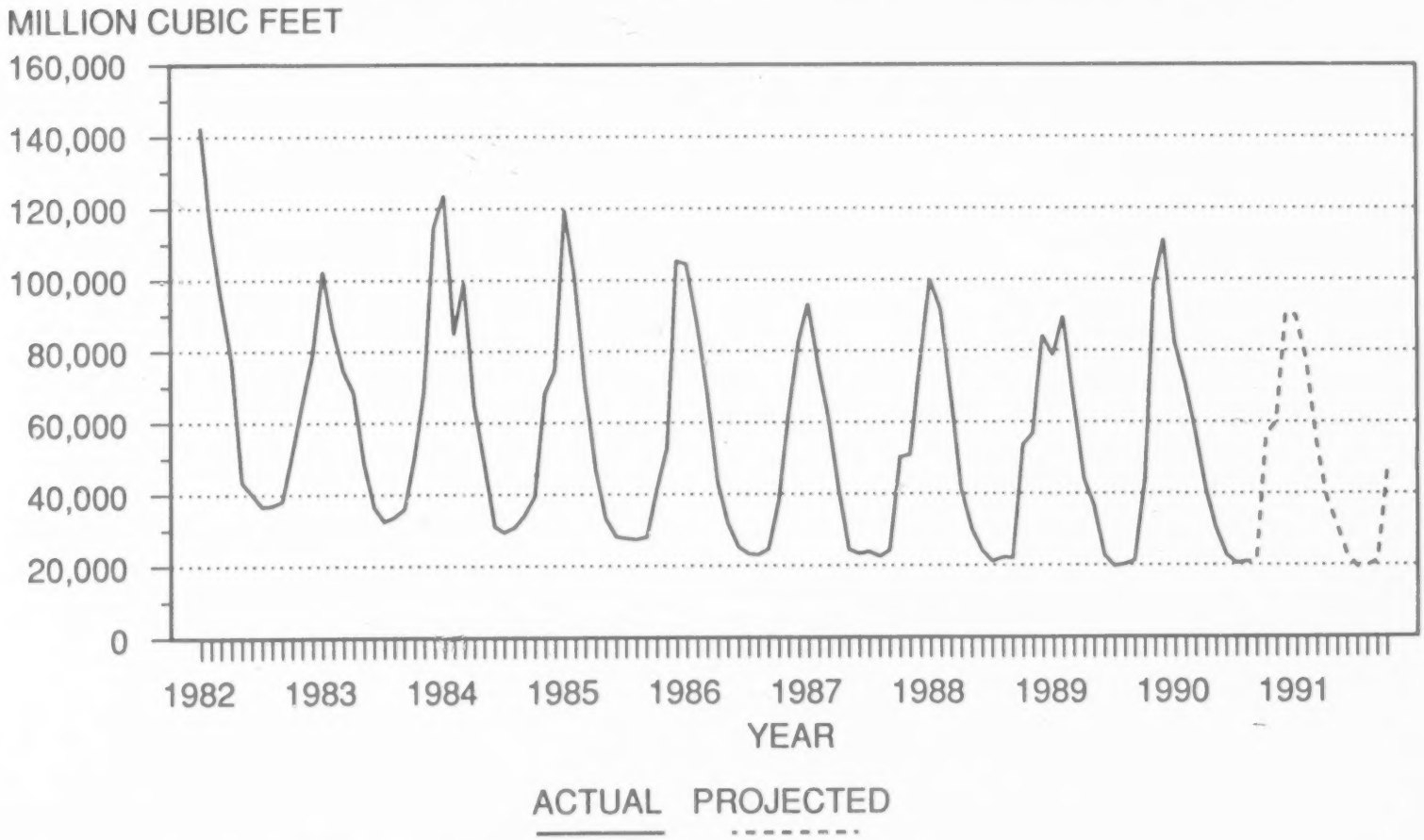
1 Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

2 Forecast and Actual data includes residential, commercial, industrial, other, and storage (in) gas. It does not include non-tariff or transportation gas.

3 Includes 32,499 MMCF of storage.

4 * = Actual figures not available.

FIGURE B-4. MONTHLY OHIO TOTAL NATURAL GAS CONSUMPTION[1] ACTUAL AND PROJECTED (JANUARY 1982-OCTOBER 1991)



1 Source: Monthly Gas Report.

Note: Forecast and Actual do not include non-tariff or transportation gas.

TABLE B-9. PROJECTED SUPPLY AND DEMAND FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES

COMPANY: CINN. GAS & ELEC.

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	1907	3801	7251	9889	11198	9483	7688	4645	2565	1588	1688	1658	17852	45509	63361
DEMAND	1907	3801	7251	9889	11198	9483	7688	4645	2565	1588	1688	1658	17852	45509	63361
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: COLUMBIA GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	4640	9652	19805	26324	35841	30716	25016	14615	11423	9354	9801	9341	68826	137702	206528
DEMAND	4640	9652	19805	26324	35841	30716	25016	14615	11423	9354	9801	9341	68826	137702	206528
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: DAYTON POWER & LIGHT

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	1423	2146	3667	6573	8182	8196	6953	4859	2633	1697	1281	1199	15238	33571	48809
DEMAND	1423	2146	3667	6573	8182	8196	6953	4859	2633	1697	1281	1199	15238	33571	48809
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0 0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: EAST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	15250	22723	26279	33488	40171	34652	30670	17927	18625	13458	12384	11422	111789	165260	277049
DEMAND	15250	22723	26279	33488	40171	34652	30670	17927	18625	13458	12384	11422	111789	165260	277049
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

TABLE B-9. PROJECTED SUPPLY AND DEMAND FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES

COMPANY: NATIONAL GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	171	120	288	430	578	563	490	276	169	283	286	281	1586	2349	3935
DEMAND	171	120	288	430	578	563	490	276	169	283	286	281	1586	2349	3935
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	404	692	892	1189	1393	1212	1013	1068	819	680	566	613	4842	5699	10541
DEMAND	404	692	892	1189	1393	1212	1013	1068	819	680	566	613	4842	5699	10541
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: RIVER GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

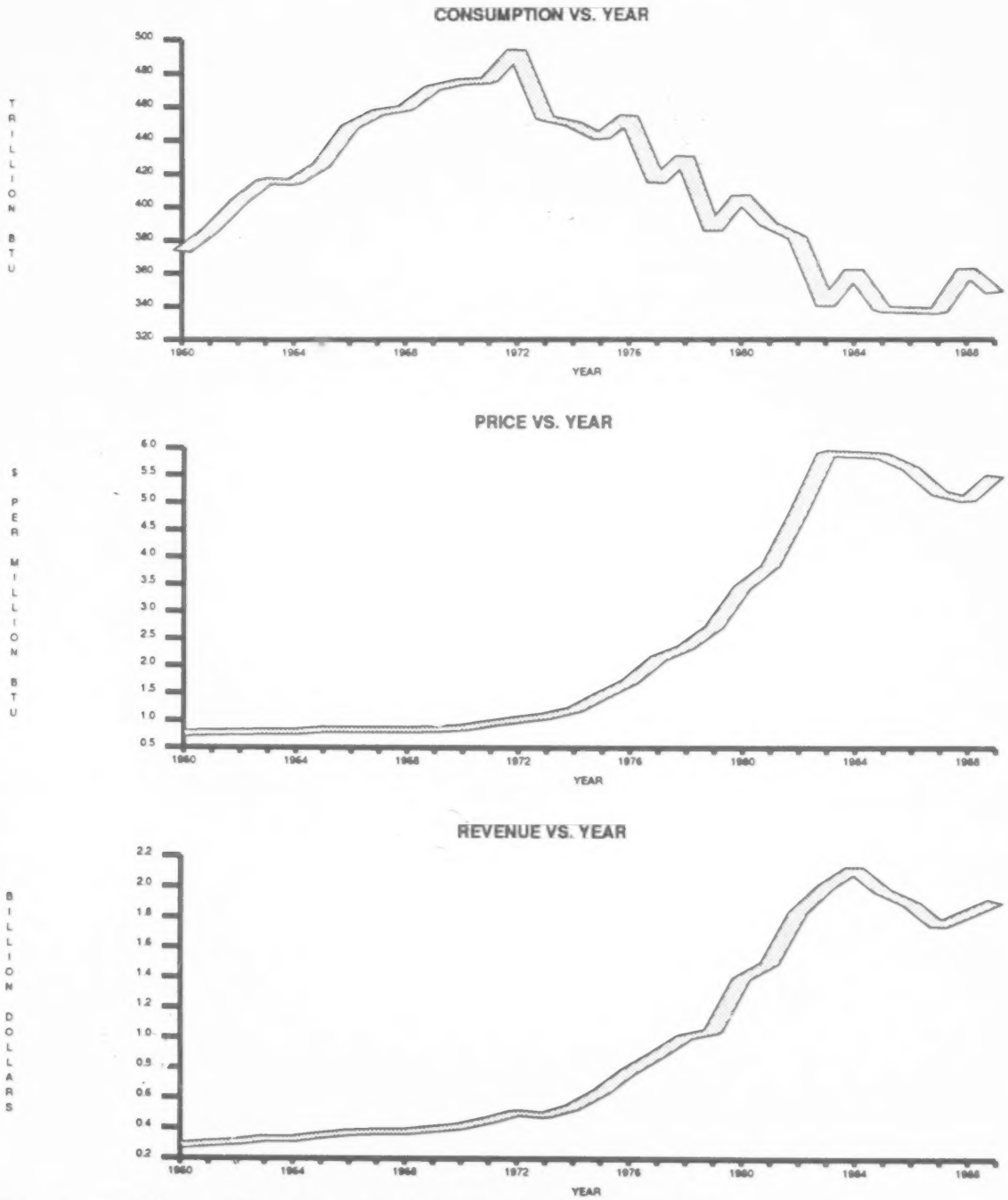
MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	147	162	218	380	446	438	366	255	187	139	146	145	1181	1848	3029
DEMAND	147	162	218	380	446	438	366	255	187	139	146	145	1181	1848	3029
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: WEST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

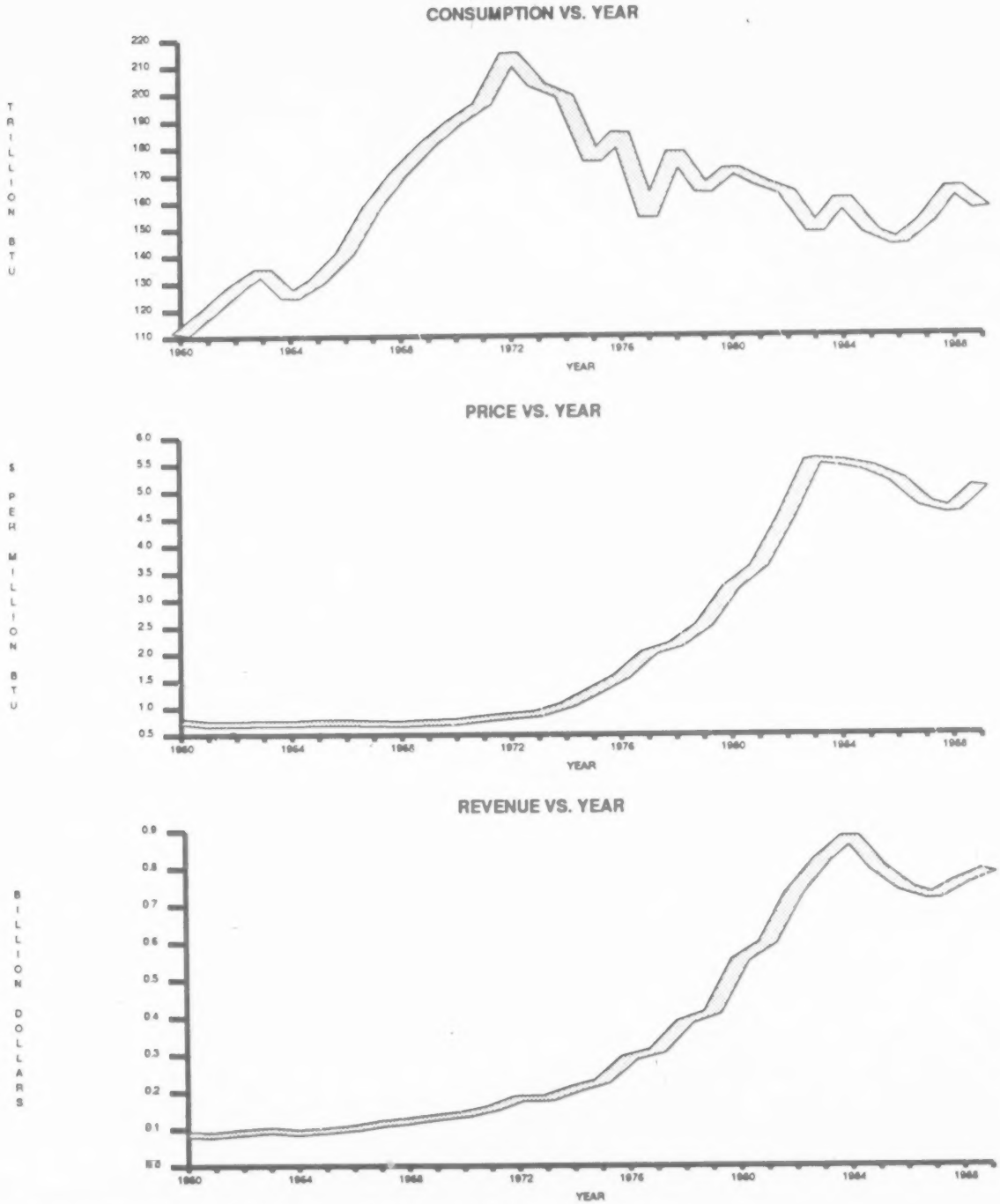
MONTH/YEAR	9/90	10/90	11/90	12/90	1/91	2/91	3/91	4/91	5/91	6/91	7/91	8/91	SUMMER	WINTER	YEAR
SUPPLY	264	545	964	1424	1795	1555	1292	876	692	559	486	562	3984	7030	11014
DEMAND	264	545	964	1424	1795	1555	1292	876	692	559	486	562	3984	7030	11014
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

FIGURE B-5. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICE AND REVENUE: RESIDENTIAL SECTOR (1960-1989)



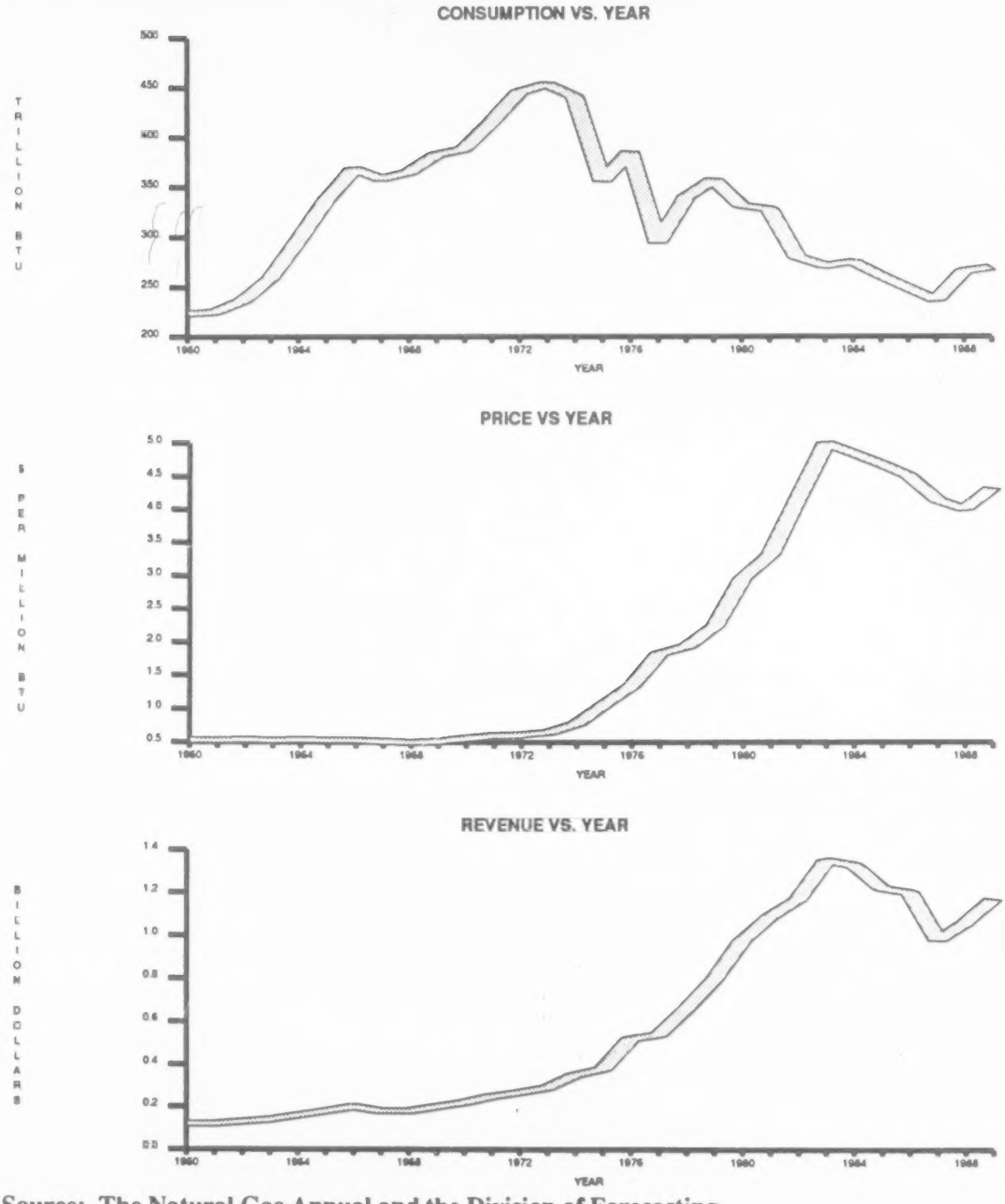
Source: The Natural Gas Annual and the Division of Forecasting.

FIGURE B-6. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICE AND REVENUE: COMMERCIAL SECTOR (1960-1989)



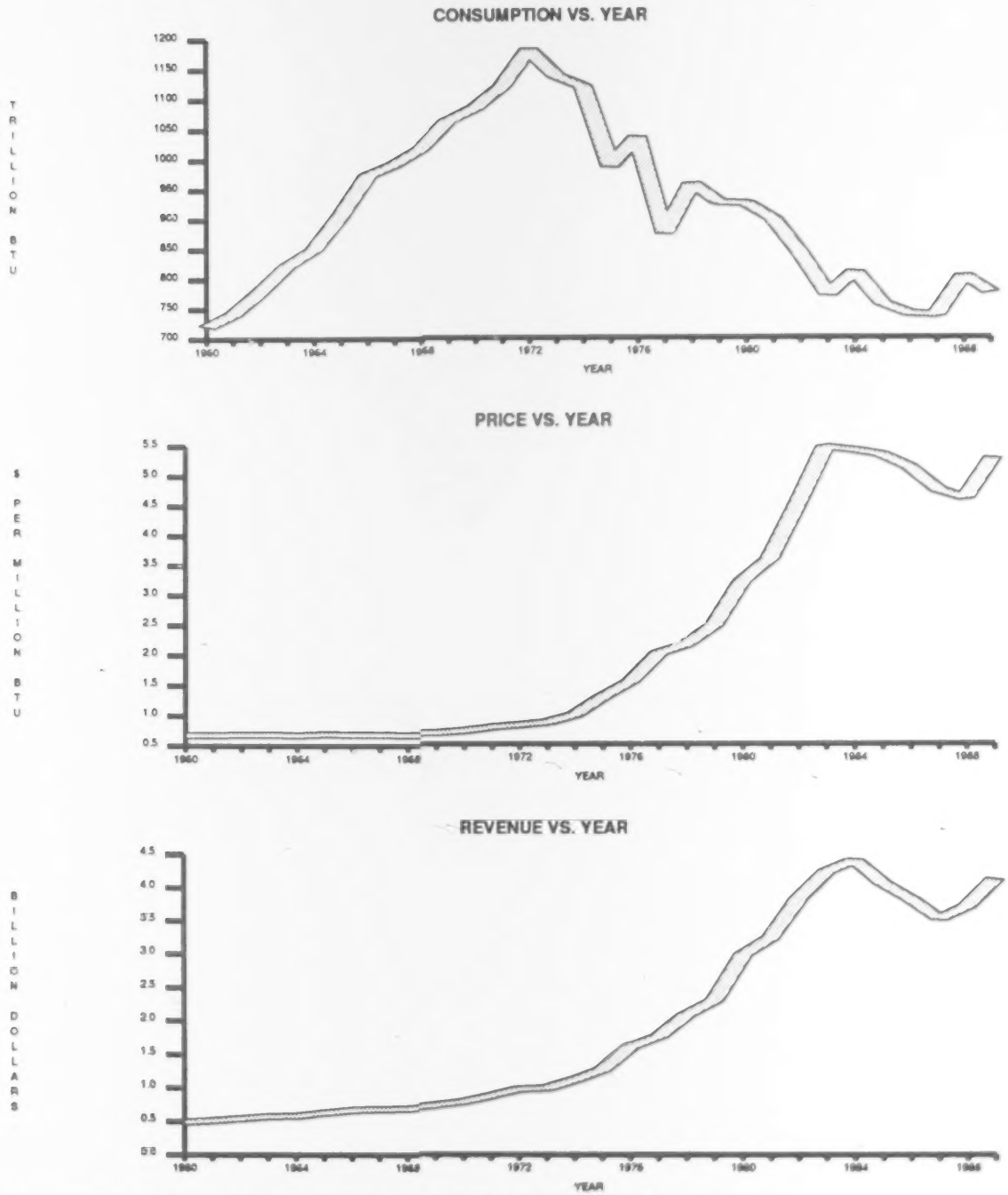
Source: The Natural Gas Annual and the Division of Forecasting.

FIGURE B-7. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICE AND REVENUE: INDUSTRIAL SECTOR (1960-1989)



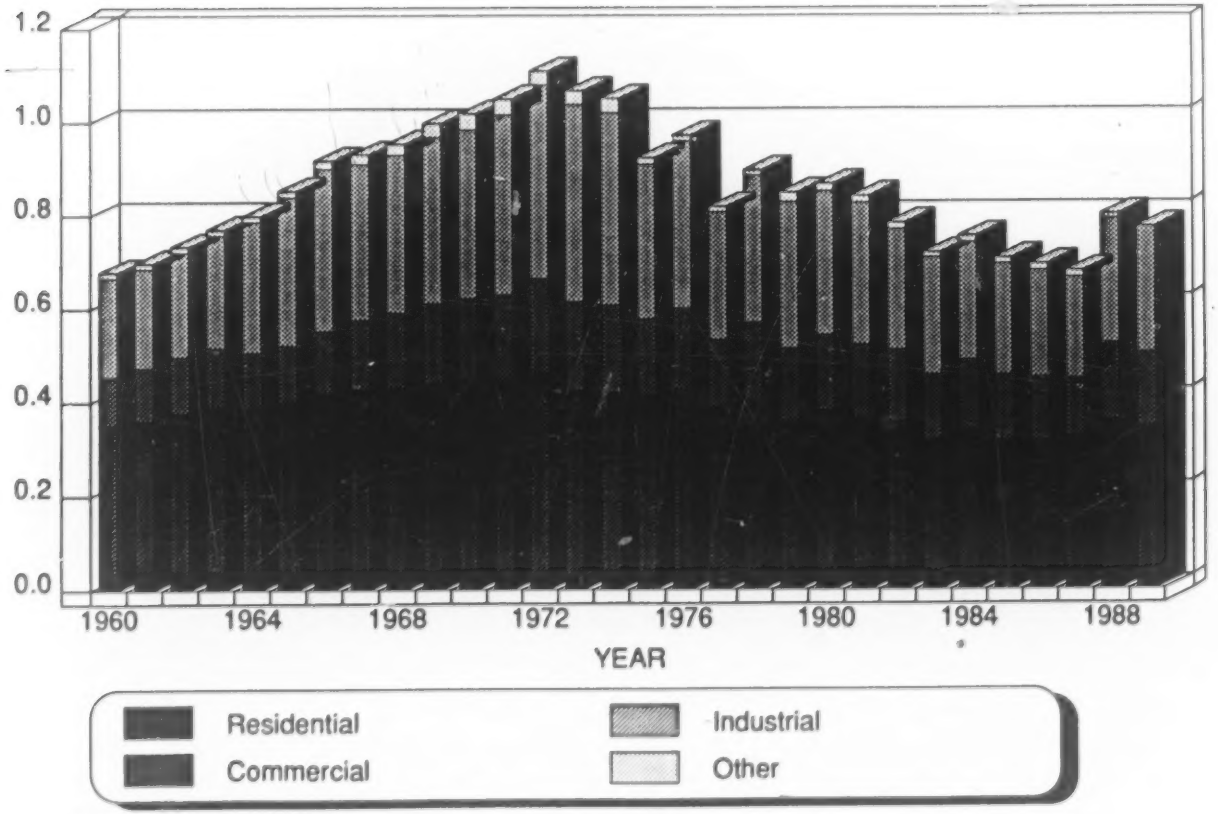
Source: The Natural Gas Annual and the Division of Forecasting.

FIGURE B-8. ANNUAL OHIO NATURAL GAS CONSUMPTION, PRICE AND REVENUE: TOTAL OF ALL SECTORS (1960-1989)



Source: The Natural Gas Annual and the Division of Forecasting.

FIGURE B-9. ANNUAL OHIO NATURAL GAS CONS'JMPTION BY SECTOR (1960-1989)



Source: The Natural Gas Annual and the Division of Forecasting.

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